

COMMERCE, JUSTICE, SCIENCE, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2017

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

NONDEPARTMENTAL WITNESSES

[CLERK'S NOTE.—The subcommittee was unable to hold hearings on nondepartmental witnesses. The statements and letters of those submitting written testimony are as follows:]

PREPARED STATEMENT OF THE AMERICAN BAR ASSOCIATION

Chairman Shelby, Vice Chairwoman Mikulski, and subcommittee members, I am Paulette Brown, President of the American Bar Association (ABA) and a partner at Locke Lord LLP.

REQUEST: I am submitting this statement today on behalf of the ABA, which has over 400,000 members. The ABA recommends funding for the Legal Services Corporation (LSC) at \$475 million, the administration's fiscal year 2017 budget request.

For the implementation of "Equal Justice Under Law," our Government has a true partner in the ABA. We have created an annual ABA Day of Service in October, operate an ABA Center for *Pro Bono*, produce an annual award program for *pro bono* work, established the Commission on the Future of Legal Services, and host, with our colleagues at the National Legal Aid and Defender Association, the annual Equal Justice Conference.

To strengthen legal aid is to strengthen the rule of law. I do not just pay lip service to legal aid and to *pro bono* work; I am very passionate about these services and try every day to remember and live "to whom much is given, much is required." In my third year of law school I personally participated in a clinical program which partnered with Essex/Newark Legal Services in New Jersey. Following my graduation and for several years thereafter, I worked *pro bono* for that same legal services office, successfully representing dozens of tenants in an important landlord/tenant case. Later, as a member of the ABA Litigation Section, I helped train young legal services lawyers and other lawyers who provided *pro bono* services. Furthermore, I have provided *pro bono* services to members of our military. However, *pro bono* services themselves are not sufficient to meet the needs of our vulnerable.

HISTORICAL NEED: First of all, I want to thank the Senate subcommittee for taking the initiative to restore LSC's budget—5.4 percent, 2.6 percent, and 2.6 percent increases over the past 3 years.

However, the fiscal year 2016 LSC appropriation is still 15.7 percent lower than it was in 2010 (in fiscal year 2016 dollars), while the number of people qualifying for assistance is about 25 percent higher than it was in 2007. Compare also the fiscal year 2016 funding of \$385 million to LSC's average appropriation of \$663,944,870 (in fiscal year 2016-adjusted dollars) during the 1980s. LSC seriously needs an increase.

Furthermore, robust funding for the LSC is desperately needed because other funding sources have diminished since the country's economic downturn. All States, save Alabama, Florida, and Idaho, now provide State-government funding for legal aid programs. However, as a lingering effect of the recession, in some States State funding is indeed way down due to declines in filing fees supporting legal aid. Rev-

enue from Interest on Lawyers' Trust Accounts (IOLTA) has also decreased approximately 80 percent nationally in the past 9 years, causing their grants for legal aid programs to diminish by 68 percent.

Funding for the Legal Services Corporation has been a high priority issue for the ABA for four decades. The ABA has supported the provision of legal services to those who cannot afford them since establishing the Standing Committee on Legal Aid and Indigent Defendants (SCLAID) in 1920. Supreme Court Justice Lewis F. Powell, while serving as ABA President in 1964, called for a major expansion of the Nation's legal services, and the ABA worked closely with many others to achieve this goal, culminating in President Nixon signing LSC into law in 1974.

I commend your efforts for low-income Americans now when the need for legal aid is near an all-time high. Civil legal aid is a constituent service performed in every State and congressional district in the country, complementary to your own constituent services. I believe there is an opportunity for legal aid programs to work more closely with your constituent services staffers to help constituents resolve their legal matters, thus potentially alleviating the need for other Federal program funds. In so doing, LSC funding provides long-term benefits.

The local legal aid programs help people at or below 125 percent of Federal poverty levels—this year, \$11,880 for an individual and \$24,300 for a family of four. The most recent data from the U.S. Census Bureau show that over 95.2 million Americans—one in three—qualified for civil legal aid at some point in 2014.

Significantly, studies show that 50–80 percent of all eligible people seeking legal aid services are turned away due to lack of resources. That impediment seriously hampers justice in our legal system. In fact, in 2015 the World Justice Project ranked the United States 65th of 102 countries in its Rule of Law Index for civil justice access, behind Moldova, Zimbabwe, and Venezuela.

Consider a few examples of how funding increases bolster accessibility. LSC's modest increases over the past three fiscal years allowed Alabama's program to keep the Anniston office open and Maryland's program to open an office in Montgomery County and expand the statewide Self-Help Center. Mr. Chairman, LSC is the largest provider of civil legal assistance to low-income Americans, and Alabama is more dependent on LSC funds as part of Legal Services Alabama's overall budget than any other State in the country. LSC grants fund legal aid programs in each of the 50 States, the District of Columbia, Puerto Rico, and American Samoa.

AREAS OF HELP: Legal aid helps clients with health concerns, consumer and finance matters, family law, obtaining an education, individual rights, income maintenance, juvenile law, tribal law, employment, disability, housing matters like foreclosures and evictions, and more.

BENEFICIARIES: Several groups in particular are beneficiaries of legal aid services:

1. Veterans returning from war,
2. Older Americans,
3. Rural Americans,
4. Women, constituting nearly 70 percent of clients, and
5. Natural-disaster victims.

Returning military veterans and families, such as over 1.6 million U.S. troops who have served in Iraq and Afghanistan since 2001, receive legal aid for consumer issues, employment, family law, homelessness, and benefits for service-related injuries that can take months or years to obtain.

Older Americans often need help as victims of financial fraud. Additionally, seniors commonly have housing issues. Vice Chairwoman Mikulski, Maryland faces one of the Nation's highest foreclosure rates. Housing issues account for 38 percent of the Maryland Legal Aid Bureau's caseload. Nationally, housing issues account for the second-largest percentage of LSC grantees' total caseload (28 percent). This includes landlord-tenant disputes, prevention of foreclosures, renegotiation of home loans and mortgages, and assistance to renters whose landlords are undergoing foreclosures. Last year LSC aided over half a million people with housing issues nationally.

For example, Nicole Perez, an attorney with Legal Aid of Los Angeles, spent a year and a half saving an elderly disabled widow of a Vietnam veteran from foreclosure. The elderly woman's husband had suffered from the effects of Agent Orange poisoning, but had been denied benefits. Nicole and her colleagues successfully blocked the forced sale of the house and managed to get the \$45,000 in retroactive benefits and nearly \$1,500 in ongoing monthly payments from the VA, ensuring the elderly widow would be financially secure in her home.

Rural Americans oftentimes have difficulty obtaining needed legal assistance. Mr. Chairman, Legal Services Alabama is working to ensure those rural areas have a means of accessing legal aid. In 46 of Alabama's 67 counties, more than 50 percent of the population lives in rural areas, making legal aid more difficult to obtain. LSC grantees are sometimes the only means by which low-income citizens living in more remote areas can receive legal aid. This year LSC developed a Rural Summer Legal Corps that will commence in the summer of 2016.

Women often gain assistance with the most frequent type of case: family law issues. More than one-third of all cases deal with family law matters such as domestic violence, custody, and guardianship for children without parents.

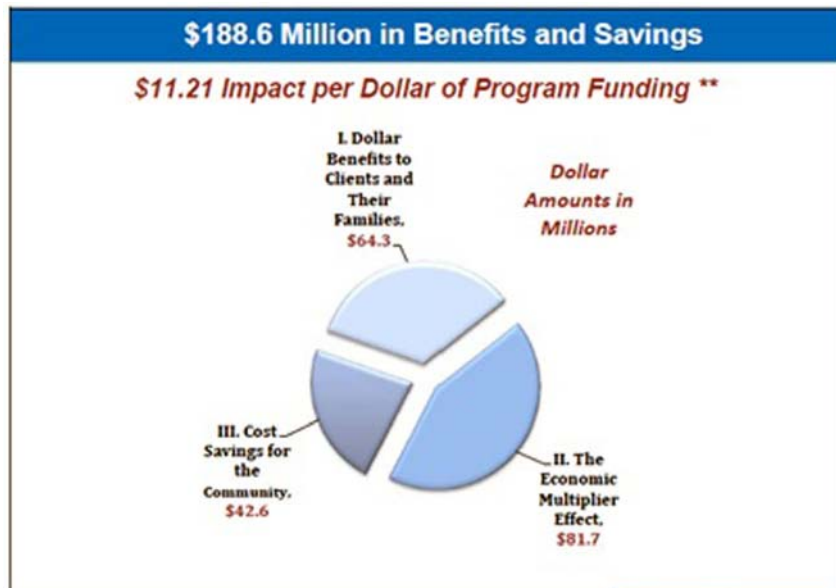
Disaster victims really see value in the LSC's work. In my home State of New Jersey, LSC provided storm-related legal assistance for victims of Hurricane Sandy, including help with improper evictions, identity verification, denial or inadequate reimbursement of insurance claims, delays in repairs, and home repair scams. Each year natural disasters throw thousands into poverty, create extensive legal entanglements, and can overwhelm legal aid programs.

SPECIFIC EMPHASES: This year's request emphasizes the improved use of technology with LSC's Technology Initiative Grants (TIG) program. It has provided efficiencies associated with statewide Web sites and enhanced case management systems.

LSC is also innovating with its *Pro Bono* Innovation Fund (PBIF), first funded in fiscal year 2014. The PBIF supports collaborative projects to develop replicable *pro bono* legal service innovations. The thousands of hours of *pro bono* service private lawyers provide each year in a public-private partnership are critical but totally insufficient to replace Federal LSC funding, which provides the framework through which most *pro bono* services are delivered. These projects create partnerships with local law schools, community organizations, rural populations, and corporate attorneys. Having this Federal money to leverage more *pro bono* efficacy is critical.

In accordance with its strategic planning, the LSC this past year followed through on its commitment to strong management and accountability for Federal funds. Examples include new purchasing and contracting protocols, mandatory training on conflicts of interest and whistleblower policies, and updated records-management policy and retention schedules.

COST/BENEFIT: In March 2015 the Tennessee Bar Association published a new report entitled "Economic Impact of Civil Legal Aid Organizations in Tennessee." The chart below summarizes the principal economic benefits that civil legal aid programs provide.



The report and chart reveal \$11.21 of economic benefit per dollar invested. Eighteen percent of the benefits are attributable to preventing foreclosure, which itself offsets the cost of all legal aid, providing a 2-to-1 return. Foreclosure lowers property values, damages consumers' credit, soaks up the time and resources of lenders, and reduces municipalities' property tax collections. Preventing foreclosure is a measureable public good.

Likewise, preventing domestic violence saves a victim the trauma and costs of "medical treatment, counseling, police protection, and other support," valued at over ten thousand dollars per victim per year.

The savings for the communities alone merit the cost. Likewise, do the direct client and family benefits. On top of the community savings and direct client and family benefits, the well-recognized economic multiplier effect guarantees the value of LSC appropriations.

CONCLUSION: As the economy revives, LSC funding should also revive. Down 15.7 percent from 2010 (in fiscal year 2016 dollars) and with 25 percent more people qualified for legal aid, LSC is in serious need of an increase. Certainly no decrease is in order. Given LSC's excellent benefit/cost ratio and exemplary management and accountability for Federal funds, we encourage you, while still considering the fiscal issues the country faces, to fund this meritorious program at \$475 million.

PREPARED STATEMENT OF THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

Chairman Shelby, Ranking Member Mikulski, and members of the subcommittee, thank you for the opportunity to submit written testimony on behalf of the American Educational Research Association. Appreciative of the continuing stringent times, we recommend that the National Science Foundation receive \$8 billion in fiscal year 2017. This recommendation is consistent with that of the Coalition for National Science Funding, in which we are an active member. In addition, I would like to state our support for the \$953 million requested for the Education and Human Resources (EHR) Directorate and \$289 million requested for the Directorate for Social, Behavioral and Economic (SBE) Sciences in fiscal year 2017.

AERA is the major national scientific association of 25,000 faculty, researchers, graduate students, and other distinguished professionals dedicated to advancing knowledge about education, encouraging scholarly inquiry related to education, and promoting the use of research to serve public good. Many of our members are engaged in science, technology, engineering, and mathematics (STEM) education research. Our members work in a range of settings from universities and other aca-

demographic institutions to research institutes, Federal and State agencies, school systems, testing companies, and nonprofit organizations, engaged in conducting research in all areas of education and learning.

AERA values the leadership role of the National Science Foundation (NSF) in advancing scientific breakthroughs and fundamental knowledge. This testimony focuses specifically on the two directorates that primarily support education research at NSF. We are particularly enthusiastic about how the Education and Human Resources Directorate (EHR) plans to use these resources to advance sustained and significant STEM research. In addition to the significant investments in education sciences provided by EHR, AERA values the important role the Social, Behavioral and Economic Sciences Directorate (SBE) in funding important education research, including the essential statistical information provided by the National Center for Science and Engineering Statistics.

On behalf of AERA, I wish to highlight significant activities within the EHR Directorate and to offer our enthusiastic support for continued emphasis on core STEM education research to better engage, sustain, and retain STEM learners, leading to an inclusive and competitive STEM workforce.

The EHR Directorate at NSF is responsible for providing the research foundation necessary to achieve excellence in U.S. STEM education. EHR sets out to accomplish this goal by supporting the development of a scientifically literate citizenry as well as a STEM-skilled workforce. This responsibility requires coordination and collaboration across all NSF directorates and with other Federal agencies.

AERA supports the three core research areas: Broadening participation and institutional capacity; learning and learning environments; and STEM professional workforce development. Furthermore, we are pleased to see that the EHR Core Research (ECR) program continues to be a top priority in fiscal year 2017 with increased funding in every division. Investments like ECR have successfully increased the percentage of funding allocated to research and development within the EHR Directorate.

EHR bolsters Federal investments in STEM education by funding the research and development that informs strategic education investments across NSF and other agencies. We urge the subcommittee to look favorably on this request as an opportunity to support a well-developed and compelling plan.

AERA's interest in the Social, Behavioral and Economic Sciences (SBE) Directorate relates primarily to the directorate's support of research that promotes the understanding of people and reveals basic aspects of human behavior in the context of education and learning. The budget plan for SBE in fiscal year 2017 reflects priorities for advancing fundamental knowledge in the social, behavioral, and economic sciences that provides critical research to promote the Nation's economy, security, and global leadership. The budget for SBE is not even 4 percent of the NSF budget, yet it provides approximately 66 percent of the Federal funding for basic research in social, behavioral, and economic sciences at academic institutions. In addition, AERA has a strong interest in the National Center for Science and Engineering Statistics (NCSES) within SBE. NCSES provides invaluable statistical information about science and engineering in the U.S. and around the world.

NCSES collects and analyzes data on the progress of STEM education and the research and development. This information also provides valuable information on the trajectories of STEM graduates both in STEM and non-STEM careers. The fiscal year 2017 budget request for NCSES will support critical activities to improve surveys and redesign questionnaires to improve data on measures of educational pathways for scientists; develop new data techniques building on administrative data; and enhance data tools, techniques, and visualizations to facilitate access to statistical resources.

Thank you for the opportunity to submit written testimony in support of \$8 billion for the National Science Foundation reflecting \$953 million for the Education and Human Resources Directorate and \$289 million requested for the Directorate for Social, Behavioral and Economic Sciences in fiscal year 2017. AERA would welcome any opportunity to work with you and your subcommittee to best support the crucial advances of the National Science Foundation. Please call on us if we can provide additional information regarding this budget proposal.

PREPARED STATEMENT OF THE AMERICAN GEOPHYSICAL UNION
FISCAL YEAR 2017 BUDGET REQUEST

The American Geophysical Union (AGU), a non-profit, non-partisan scientific society, appreciates the opportunity to submit testimony regarding the fiscal year 2017

budget request for the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), and the National Science Foundation (NSF). The AGU, on behalf of its more than 60,000 Earth and space scientist members, respectfully requests that the 114th Congress appropriate:

- \$20.3 billion overall for NASA,
- \$2 billion for the Earth Science Mission Division,
- \$1.71 billion for the Planetary Science Mission Division,
- \$740 million for the Heliophysics Mission Division;
- \$6.05 billion overall for NOAA;
- \$8 billion overall for NSF.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

AGU requests that Congress appropriate \$20.3 billion for NASA in fiscal year 2017. Additionally, AGU requests that Congress appropriate \$2 billion for NASA's Earth Science Mission and \$1.71 billion for NASA's Planetary Science Mission. These increases represent a 5 percent increase over the fiscal year 2016 appropriated levels and ensure that NASA is able to continue its work and preserve U.S. leadership in Earth and space science and exploration. Of note is that a request of 5 percent allows NASA to grow above the rate of inflation and make critical progress towards achieving the scientific goals outlined in the Decadal studies produced by the National Research Council.

AGU also requests that Congress appropriate \$740 million for NASA's Heliophysics Science Mission. Unlike NASA's other Science Missions, Heliophysics received a cut in fiscal year 2016 and has seen only nominal increases in earlier years. This request is a 5.7 percent increase year-over-year from fiscal year 2015 to fiscal year 2017 and will ensure that NASA's Heliophysics Division is able to fulfill the intention of the National Space Weather Strategy and restore real dollar investments in heliophysics missions.

Within NASA's Science Mission Directorate, AGU requests that Congress set equitable appropriation levels for the Earth, Planetary, and Heliophysics Divisions to ensure they are in harmony with their respective Decadal studies produced by the National Research Council.

Earth Science and Planetary Science Divisions

Missions within NASA's Earth Science Division aid in flood and drought prediction, earthquake response, and optimizing military and commercial marine operations. Greater knowledge and forecasting skills are urgent when we consider the effort, time, and costs of protecting coastal infrastructure, human and animal health threatened by toxic algal blooms, developing new water resources for manufacturing and agriculture, and restoring communities in the wake of hazards. These observations, and many others like them, are integral and require the vantage point of outer space.

NASA's Planetary Science Division advances our understanding of the solar system and inspires future generations of scientists. NASA is on schedule to launch the next Mars rover in 2020 and plans to launch a Europa mission in the same decade, furthering our understanding of the conditions needed to sustain life.

Both areas of science, Earth and planetary, are complementary. The study of the Earth system—Earth's interacting physical, chemical, and biological processes—informs our understanding of other worlds in the solar system, and our exploration of these bodies advance our knowledge of Earth's evolution.

Heliophysics Science Division

Studying the sun and its interactions with Earth is crucial to increasing our knowledge of the dynamic solar processes that impact all life on our planet. This includes advance detection and warning of space weather events, such as solar storms, that have the potential to cause serious damage to our satellites, energy grid infrastructure, and the electronics we depend on everyday. The request would ensure that NASA's Heliophysics Division continues to advance our understanding of the threat of space weather, as directed by last year's National Space Weather Plan, and other interactions between the sun and the Earth.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

AGU requests that Congress appropriate \$6.05 billion for NOAA in fiscal year 2017. This would be a 5 percent increase over the fiscal year 2016 appropriated level for NOAA. Investing in NOAA not only keeps our country resilient in the face of environmental and public health hazards, but also strengthens our Nation's capacity

for science-based innovation and provides superior economic value by enabling businesses and government to better manage risk.

In the face of natural hazards and environmental emergencies, NOAA serves as an essential foundation of community resiliency and public health. Weather, water, and climate events cause an average of approximately 650 deaths and \$15 billion in damage per year. NOAA is also responsible for around 90 percent of all presidentially declared disasters. Strong support for NOAA will allow the agency to create detailed flooding forecasts for the 100 million Americans who do not currently have them; maintain the NEXRAD radar system used for 85 percent of all tornado and severe storm warnings; and continue adding to the 39,000 lives saved by NOAA's satellite rescue program. The services provided by NOAA are irreplaceable in emergency situations where time is a matter of life and death.

NOAA also plays a critical role in ensuring our economic stability. One third of U.S. GDP is affected by weather and the environment; 2015 saw 10 weather and climate disaster events resulting in losses exceeding \$1 billion. From large corporations to small businesses, the decision-based forecasting provided by NOAA allows American enterprises to make informed choices that save vital time, money, and resources. The high quality, uninterrupted data provided by NOAA and interpreted by NOAA scientists is a fundamental tool that millions of Americans rely on every day.

NOAA is constantly improving its ability to prepare for, respond to, and recover from major disasters and national security emergencies. NOAA's Space Weather Prediction Center forecasts geomagnetic storms from the sun, and can provide a 15- to 60-minute warning time before the surge of charged particles reaches Earth. These storms can disable power grids, shut down telecommunications, and disrupt commercial and military global positioning systems (GPS). Experts estimate the next large storm has the potential to cost our economy \$1–2 trillion. Without NOAA's advanced warnings, our national security and economy are left in a dangerously vulnerable position.

NATIONAL SCIENCE FOUNDATION

AGU requests that Congress appropriate \$8 billion for NSF in fiscal year 2017. This would be a 7.2 percent increase over the fiscal year 2016 appropriated level for NSF.

The Foundation is critical to America's ability to compete globally in technological and scientific innovation. Faced with ever-increasing international competition, maintaining U.S. scientific leadership requires continued robust investments in basic research and STEM education. NSF's annual budget provides about a quarter of the total Federal budget for basic research conducted at U.S. colleges and universities. NSF is the only Federal agency that supports research and education across all STEM fields at all educational levels. Over 90 percent of NSF's projects are funded using grants or cooperative agreements, of which three-fourths go to academic institutions. Research and education programs supported by NSF help increase and develop the knowledge base needed to push the frontiers of science, mathematics, and engineering disciplines, contribute to the development of the future science and technology workforce, underpin new fields of inquiry, and promote interdisciplinary research and education. All of these undertakings facilitate technological innovation.

Even under tight budget constraints, it is vital for NSF to have steady budget levels that demonstrate real growth. Under constant 2014 dollars, NSF lost 5.8 percent of its budget from fiscal year 2010 to fiscal year 2014. This stagnant pace of funding is creating an innovation deficit in the U.S.—a widening gap between the actual level of Federal Government funding for research and higher education and what the investment must be for the U.S. to remain the world's innovation leader.

Geosciences Directorate

The Geoscience Directorate (GEO) awards research grants in the Earth, atmospheric, ocean, and polar sciences. Much of the geoscience research budget leads to a better understanding of critical national needs, such as water and mineral resources, energy resources, environmental issues, climate change, and mitigation of natural hazards. AGU asks the subcommittee to strongly support these programs.

GEO supports infrastructure, operation, and maintenance costs for cutting edge facilities that are essential for fundamental and applied research. Geoscience-based research tools and academic expertise helped to track and contain the BP *Deepwater Horizon* oil spill, saving billions of dollars for Gulf industries and untold costs to the environment. Among the major infrastructure that NSF supports are the U.S. Arctic and Antarctic Facilities and Logistics, Academic Research Fleet, EarthScope Operations, Incorporated Research Institutions for Seismology (IRIS), the Ocean Drilling Program, the Ocean Observatories Initiative, and the National Center for

Atmospheric Research. All of these programs are essential to our Nation's innovation and economic well-being. AGU strongly supports robust and steady funding for the operation and maintenance of these major facilities.

Earth Science Education

The geoscience workforce is aging and retiring at a fast rate. Congress can grow this workforce, stimulate economic growth in the energy, natural resources, and environmental sectors, and improve natural resource literacy by supporting the full integration of Earth science information into mainstream science education at the K-12 and higher education levels. AGU strongly supports the new NSF INCLUDES program (Inclusion Across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science), the Integrated NSF Support Promoting Interdisciplinary Research and Education program (INSPIRE), the Graduate Research Fellowships (GRF), the Research Experiences for Undergraduates (REU), and the Faculty Early Career Development Program (CAREER). These programs are effective in building a science and engineering workforce for the twenty-first century that supports academia, industry, national defense, and Federal and local governments.

PREPARED STATEMENT OF THE AMERICAN GEOSCIENCES INSTITUTE

Thank you for this opportunity to provide the American Geosciences Institute's perspective on fiscal year 2017 appropriations for geoscience programs within the subcommittee's jurisdiction.

The American Geosciences Institute (AGI) supports critical earth science research conducted by the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology (NIST), and the National Aeronautics and Space Administration (NASA). Cutting-edge research on the Earth, energy, and the environment has fueled economic growth, mitigated losses, and improved our quality of life. All of these agencies carry out vital mission-focused geoscience research and participate in a range of interagency collaborations with the U.S. Geological Survey, the Department of Energy, other Federal agencies, and State, tribal, and local agencies on topics ranging from emergency planning and response to anticipating water availability. The Earth system is highly complex and interconnected, geoscience information from all these agencies is vital for decisionmaking at all levels of government.

AGI respectfully requests at least \$8 billion funding for NSF, including \$1.4 billion for the Geoscience Directorate. AGI supports the President's request for \$5.85 billion for NOAA, \$1 billion for NIST, and \$2.03 billion for NASA Earth Science programs.

AGI is a nonprofit federation of 51 geoscientific and professional societies that represent more than 250,000 geologists, geophysicists, and other Earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resilience to hazards, and the health of the environment.

NATIONAL SCIENCE FOUNDATION

Research across all areas of science and engineering contributes knowledge and understanding about many societal issues ranging from homeland security to cyberinfrastructure, and it produces revolutionary and often unforeseen breakthroughs. Basic research provides information that is used to improve people's quality of life, it is the foundation for a dynamic and innovative economy, and it strengthens the security of the Nation.

NSF not only provides core funding and essential infrastructure for basic research, it also supports the education and training of the next generation of the workforce. AGI believes that investment in NSF programs, where funding is allocated based on competitive, scientific merit and peer review, will pay important dividends in maintaining U.S. dominance in science and technology far into the future. AGI supports the President's request for \$8 billion for NSF.

NSF Geosciences Directorate: The Geosciences Directorate (GEO) is the principal source of Federal support for academic earth scientists and their students who seek to understand the Earth and the processes that sustain and transform life on this planet. The Geosciences Directorate provides about 64 percent of Federal funding for basic geoscience research at academic institutions. The Directorate expects to distribute about 1,400 research grants and 1,600 competitive awards in fiscal year

2017 while also supporting indispensable research infrastructure and instrumentation. AGI respectfully asks the subcommittee to provide the Geosciences Directorate with at least \$1.4 billion for fiscal year 2017.

The GEO Directorate plays a significant role in NSF's cross-foundational initiatives, particularly the Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) and Prediction of and Resilience against Extreme Events (PREEVENTS) activities. Geoscience research is fundamental to all elements of INFEWS, contributing information on fossil, nuclear, and renewable energies; the quantity, quality, and distribution of water supplies; the characteristics, health, and stability of soils; and on the critical zone where earth, biological, and human systems intersect. The PREEVENTS initiative will strengthen the Nation's resilience to natural disasters such as hurricanes, droughts, and earthquakes, which are all linked to the Earth system. These investments in pre-disaster research and mitigation will provide an excellent return on investment, both in monetary and social terms. AGI supports \$62 million for INFEWS and \$43 million for PREEVENTS, including \$14.78 million for INFEWS and \$23.50 million for PREEVENTS in the Geoscience Directorate, and particularly stresses the importance of the Earth Science Division's contribution to this work.

NSF's Division of Polar Programs (PLR) funds basic research in the Arctic and Antarctic and manages all U.S. activities in Antarctica as a single, integrated program. As the U.S. enters its second year chairing the international Arctic Council, it is especially important to enhance polar research initiatives. The polar regions are the focus of intense scientific and political interest as the new navigation routes are opening access to resources and presenting security challenges. NSF-funded research and infrastructure are helping the United States understand environmental conditions in extreme environments, develop polar technology, and construct data-driven strategic and security policies. AGI suggests a minimum of \$465 million for the Division of Polar Programs.

NSF funds facilities that enable researchers to access locations, data, and technologies that serve the overall research community. AGI strongly supports robust and steady funding for infrastructure and the operation and maintenance of major facilities, including the Academic Research Fleet, Geodetic and Seismological Facilities for the Advancement of Geosciences and EarthScope (GAGE and SAGE), Ocean Drilling Activities, the Ocean Observatories Initiative, and the National Center for Atmospheric Research (NCAR). A centralized pool of national geoscience infrastructure is an efficient way to achieve the maximum return on investment and to ensure that the nation has the equipment and expertise needed to respond rapidly to opportunities and emergencies. AGI supports both the discretionary and mandatory funding requested by the President for these essential facilities within the Geosciences Directorate.

Directorate for Education and Human Resources: AGI's Status of the Geoscience Workforce Report 2014 predicts a shortfall of approximately 135,000 geoscientists by 2022. NSF funding for geoscience education is essential to develop the competitive, skilled workforce that can fill this predicted gap in areas of vital national interest including energy and the environment. Geoscience education also creates an informed citizenry prepared to make well-founded decisions about the management of our planet and its resources. Outreach and education are important at all levels from K-12 through graduate-level education and should include formal and informal outlets to facilitate lifelong learning. AGI strongly supports funding for geoscience education at all levels and particularly supports programs to diversify the geoscience student population and workforce such as the INCLUDES (Inclusion across the Nation of Communities of Learners that have been Underrepresented for Diversity in Engineering and Science) initiative. AGI urges Congress to provide funding for the President's total request of \$242 million for NSF's Directorate for Education and Human Resources.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Geoscientists rely on NOAA for much of the data and long-term monitoring that enable research and rapid response for events such as hurricanes, drought, marine oil spills, and a range of coastal phenomena. The National Weather Service (NWS), Oceanic and Atmospheric Research (OAS), National Ocean Service (NOS), and the National Environment Satellite, Data and Information Service (NESDIS) programs provide the data necessary for understanding and mitigating these events, as well as sustaining our natural resources. AGI supports the President's request for \$5.85 billion for NOAA and hopes that the subcommittee will continue to support these crucial initiatives.

In addition, AGI supports increased funding for NWS to support landslide hazard assessments and to reduce losses from landslides and other ground failures.

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

Earth scientists and geotechnical engineers versed in the geosciences conduct basic research at NIST that is used by the public and private sectors to build resilient communities and stimulate economic growth. The research conducted and the information gained is essential for understanding natural hazards, identifying the infrastructure needed to build strong communities, and stimulating economic growth.

NIST is the lead agency for the National Earthquake Hazard Reduction Program (NEHRP), an interagency program responsible for the efficient coordination of research and resources to understand and mitigate earthquakes, but has received only a small portion of authorized funding in the past. AGI strongly supports the President's request for \$1 billion for NIST and urges Congress to reauthorize and fund the National Earthquake Hazards Reduction Program (NEHRP).

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA's current fleet of Earth-observing satellites provides the data necessary to understand our dynamic planet. Scientists rely heavily on data gathered from space to support weather and climate predictions and to understand the links between oceans, atmosphere, land, and biological systems. Government agencies and the private sector use NASA information intensively for decisionmaking and in business.

Continuous, consistent, reliable data is the foundation for accurate assessments and forecasting of Earth's interconnected systems. Landsat satellites have been observing Earth's land surfaces continuously since 1972; geoscientists use Landsat data to monitor, predict, and react to drought, wildfires, changes in vegetation, and other changes to the Earth's surface. Data from the GRACE mission allow scientists to calculate groundwater and soil moisture levels, providing vital information for farmers and water managers. The GRACE-FO (Follow-On) mission will extend this essential dataset. AGI strongly supports the continuation of the Landsat program and applauds the commitment to launch Landsat 9 as early as 2021 and Landsat 10 in or close to 2029. We support the President's request for \$2.03 billion for NASA Earth Science, including \$131 million for Landsat 9 and \$34 for the GRACE-FO mission.

Thank you for the opportunity to present this testimony to the subcommittee.

PREPARED STATEMENT OF THE AMERICAN INDIAN HIGHER EDUCATION CONSORTIUM

This statement focuses on the National Science Foundation (NSF) and National Aeronautics and Space Administration (NASA).

On behalf of this Nation's 37 Tribal Colleges and Universities (TCUs), which compose the American Indian Higher Education Consortium (AIHEC), thank you for the opportunity to express our views and recommendations regarding the National Science Foundation's TCU Program (NSF-TCUP) and the National Aeronautics and Space Administration's Minority University Research and Education Project (NASA-MUREP) for American Indian and Alaska Native STEM Engagement Program (MAIANSE) for fiscal year 2017.

SUMMARY OF REQUESTS

National Science Foundation (NSF)—Education and Human Resources Directorate (EHR): Since fiscal year 2001, a TCU initiative has been funded and administered under the NSF-EHR. This competitive grants program enables TCUs to enhance the quality of their STEM instructional, research, and outreach programs. TCUs that have been awarded an NSF-TCUP grant are expected to complete a comprehensive program needs analysis and to develop a plan for addressing both their institutional and NSF goals, with a primary goal being significant and sustainable expansion and improvements to STEM programs. Through NSF-TCUP, tribal colleges have been able to establish and maintain programs that represent a key component of the career pipeline for the American Indian STEM workforce. We urge the subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$14,000,000.

National Aeronautics and Space Administration (NASA)—NASA Headquarters, Office of Education—Minority University Research and Education Programs (MUREP): In 2014, the NASA-MUREP program initiated two competitive grant programs to enhance the range of STEM education and research opportunities open

to 34 eligible TCUs: (1) Earth Systems, Technology, and Energy Education for MUREP (ESTEEM); and (2) the TCU Experiential Learning Opportunity program. Together, these programs comprise MUREP's program for American Indian & Alaskan Native STEM Engagement (MAIANSE). Activities funded under these programs help to address critical science education and research needs of TCUs, are helping to build the Native (and national) STEM workforce, and enhance the economic development of tribal communities. We strongly urge the subcommittee to fund the NASA MUREP program for American Indian & Alaskan Native STEM Engagement (MAIANSE) at, or above, the fiscal year 2014 level.

Tribal Colleges and Universities: "DOING SO MUCH WITH SO LITTLE." TCUs are an essential component of American Indian/Alaska Native (AI/AN) education. Currently, 37 TCUs operate more than 75 campuses and sites in 16 States, within whose geographic boundaries 80 percent of all American Indian reservations and Federal Indian trust land lie. They serve students from well over 250 federally recognized tribes, more than 85 percent of whom receive Federal financial aid—primarily Pell grants. In total, the TCUs annually serve 160,000 AI/ANs and other community members through a wide variety of academic and community-based programs. TCUs are public institutions accredited by independent, regional accreditation agencies and, like all U.S. institutions of higher education, must regularly undergo stringent performance reviews to retain their accreditation status. Each TCU is committed to improving the lives of its students through higher education and to moving AI/ANs toward self-sufficiency. To do this, TCUs serve many roles in their reservation communities, functioning as community centers, libraries, tribal archives, career and business centers, open access computer labs, summer camps, community farms, economic development centers, GED training and testing centers, child and elder care centers, and more.

The Federal Government, despite its direct trust responsibility and binding treaty obligations, has never fully funded TCU institutional operations as authorized under the Tribally Controlled Colleges and Universities Assistance Act of 1978. Yet despite funding challenges, TCUs are leading the Nation in preparing AI/AN nurses and more recently, in preparing teachers for our Native schools. For example, in 2014, half of all AI/AN special education teachers in Montana graduated from Salish Kootenai College. TCUs train other professionals in high-demand fields, including agriculture and natural resources management, human services, IT technicians, and building tradesmen. By teaching the job skills most in demand on our reservations, TCUs are laying a solid foundation for tribal economic growth, with benefits for surrounding communities, and the Nation as a whole. But that is not enough. TCU leadership understands that we must do more—we must move beyond simply workforce training. Today, TCUs are tackling the tougher—but much more significant—issue of job creation, because we know that to break the cycle of generational poverty and end the culture of dependency that grips so much of Indian Country, simply preparing students for a very limited labor market is not enough. We must create new industries, new businesses, and a culture of self-sufficiency and innovation. Our job creation initiative is focusing initially on advanced manufacturing, through a partnership with the U.S. Department of Energy, National Laboratories, TCUs, and industry.

Tribal colleges continually seek to instill a sense of hope and identity within Native youth, who one day will lead our tribal nations. Unfortunately, the high school drop-out rate for Native students remains around 50 percent. To help address this alarming reality, TCUs are partnering with the Department of the Interior's Bureau of Indian Education to help create a lasting "college-going culture" in Indian middle and high schools. TCUs are reaching back to create a bridge for Indian students as early as elementary school, encouraging them to abandon any notion of dropping out of high school and instead, to think that the natural course is to finish high school and go on to the local TCU. In addition, TCUs offer Dual Credit courses for high school students, provide math teachers for local high schools as a strategy for improving course delivery, host Saturday academies, after school programs and summer camps for middle and high school students, and at the other end of the spectrum, they offer GED training and testing.

As noted earlier, the TCUs' operations funding is insufficient, and their budgets are further disadvantaged because, on a per student basis, the colleges receive funding for only about 85 percent of their academic enrollments. Approximately 15 percent of the TCUs' collective enrollments are non-Indian students living in the local community, but TCUs receive Federal funding based only on Indian students, defined as members of a federally recognized tribe or the biological children of enrolled tribal members. While many TCUs do seek funding from their respective state legislatures for their non-Indian, State-resident students (often referred to as "non-beneficiary" students) successes have been, at best, inconsistent. Given their locations,

often hundreds of miles from another postsecondary institution, TCUs are open to all students, Indian and non-Indian, believing that education in general, and postsecondary education in particular, is a catalyst to a better economic future for their areas.

A recent independent, economic impact study proves this, illustrating that TCUs create lasting value from multiple perspectives: students, society, and taxpayers. TCUs elevate their students' lifetime incomes, and this in turn benefits society as a whole by increasing the region's economy and generating a wide array of savings through improved lifestyles. The increased employment benefits taxpayers through increased tax receipts and a reduction in the need for welfare and unemployment benefits. In fact, every dollar spent is quadrupled in the lifetime income of students; society gains over five times the investment in added income and social savings; and the taxpayers get back almost two and a half times the investment. In short, the TCUs are a very sound investment of Federal funds.

JUSTIFICATIONS

National Science Foundation/Tribal Colleges and Universities Program (NSF-TCUP) in the Education and Human Resources Directorate

American Indian students have the highest high school drop-out rates in the country. Those who do pursue postsecondary education often require developmental classes before beginning their studies in earnest. Placement tests administered at TCUs to first-time entering students indicate that 71 percent required remedial math. Of these students, our data indicate that while 63 percent successfully complete the course, many do not do so in 1 year. Without question, a large proportion of the TCUs' already limited resources is dedicated to addressing the continual failings of K-12 education systems.

To help rectify this, TCUs have developed strong partnerships with their K-12 feeder schools and are actively working, in large part through support from NSF-TCUP grants, to engage young students in community and culturally relevant science and math education and outreach programs. These efforts include weekend academies and summer STEM camps that reinforce and supplement the instructional programs that K-12s are able to provide.

For the past 15 years, NSF-TCUP has provided essential capacity building assistance and resources to TCUs. In the years since the program began, NSF-TCUP has become the primary Federal program for building STEM capacity at the TCUs. NSF-TCUP has served as a catalyst for capacity building and positive change at TCUs and the program can be credited with many success stories. Today, American Indians and Alaska Natives are more aware of the importance of STEM to the long-term survival of tribes and tribal communities, particularly in areas such as renewable energy and technology-driven economic development.

The NSF-TCUP, administered by the Education and Human Resources Directorate, is a competitive grants program that enables TCUs to develop and expand critically needed science and math education and research programs relevant to their respective communities. Through this program, TCUs that have been awarded an NSF-TCUP grant have been able to enhance their STEM instructional offerings, workforce development, research, and outreach programs.

For example, NSF-TCUP funds have allowed Northwest Indian College (NWIC) in Bellingham, Washington to cultivate a comprehensive science education program that, beginning at the high school level, provides a range of mentoring, peer tutoring, research, service learning, and academic enrichment opportunities that help to grow the next generation of American Indian scientists, science teachers, and leaders. A new NSF-TCUP grant awarded to NWIC is producing a collaborative research partnership for geoscience education with Western Washington University (WWU). This collaborative is designed to increase and modify the geosciences curriculum at NWIC and establish an educational continuum that will facilitate the articulation of NWIC graduates into the graduate geoscience curriculum at WWU. A shared research agenda will be developed between the two institutions that uses the Bellingham Bay ecosystem as a theme for scholarly studies and place-based instruction. Administrative changes at both institutions will include student mentoring, articulation agreements, co-listed courses, and cross-cultural faculty development.

Despite its advances and successes, funding for the NSF-TCUP program has been stagnant. Therefore, not all of the TCUs have had an opportunity to benefit from this program; in fact the percentage of proposals funded has declined each year beginning in 2004. We urge the subcommittee to fund competitively awarded NSF-TCUP grants at a minimum of \$14,000,000.

National Aeronautics and Space Administration (NASA) Office of Education/Minority University Research and Education Programs (MUREP) and American Indian & Alaskan Native STEM Engagement (MAIANSE)

College of Menominee Nation (CMN) in Keshena, Wisconsin is one of four tribal colleges to win 3-year grant awards designed to improve teaching and learning about global climate change. For this project, CMN is working in collaboration with Argonne National Laboratory, University of Wisconsin-Milwaukee and UW-Platteville, National Council for Science and Environment, and of course, NASA. The overarching goals of the CMN project are to explore climatic factors that affect photovoltaic module performance, and to design an evaluation tool for comparing different solar energy systems. The project has three main objectives: (1) to provide an experiential learning opportunity for four to six STEM students to construct a user-friendly solar energy system evaluation tool, including cost analysis and investment payback schedule; (2) to establish innovative teaching curricula that meld STEM concepts with climate change literacy resulting in combined social science and physical science courses with wide student appeal; and (3) to develop an educational train-the-trainer model as a training outlet for TCU faculty and local middle school teachers to learn how to incorporate climate change topics in the classroom. The project is intended to advance discovery and understanding of climate-related research while promoting teaching, training, and learning of STEM principles. The results of this research will advance knowledge and understanding of the short- and long-term performance of solar energy systems, thereby allowing consumers to make educated choices about solar module return on investment for residential and commercial energy. One of the goals of the MAIANSE programs is to create a diverse and highly skilled climate-related workforce. Continuation and expansion of these NASA programs will give more TCUs the opportunity to increase their capacity and advance the NASA mission in Indian Country. We strongly urge the subcommittee to fund NASA-MUREP MAIANSE programs at a minimum of \$3,500,000.

CONCLUSION

Tribal Colleges and Universities provide access to quality higher education opportunities, including STEM-focused programs, for thousands of American Indians and Alaska Natives. The modest Federal investment that has been made in TCUs has paid great dividends in terms of employment, education, and economic development. Continuation of this investment represents one of the most cost-effective strategies for enabling Tribal (and national) STEM-based economic development.

We greatly appreciate your past and continued support of the Nation's Tribal Colleges and Universities and your thoughtful consideration of our fiscal year 2017 appropriation request.

PREPARED STATEMENT OF THE AMERICAN PHYSIOLOGICAL SOCIETY

The American Physiological Society (APS) thanks you for your sustained support of science at the NSF and NASA. The APS is a professional society, numbering more than 10,000 members, dedicated to fostering research and education as well as the dissemination of scientific knowledge concerning how the organs and systems of the body function. In this letter we offer our recommendations for fiscal year 2017 funding levels for these two agencies.

- The APS urges you to fund the fiscal year 2017 NSF budget at a net level of \$7.96 billion to prevent further erosion of program capacity.
- The APS urges you to restore cuts to NASA's life sciences research budgets and to increase funding for the Human Research Program.

NSF and NASA support scientific research and technology development programs that are critical to the future technological excellence and economic stability of the United States. Federal investment in research is critically important because breakthroughs in basic and translational research are the foundation for new technologies that help patients, fuel our economy, and provide jobs.

NSF Funds Outstanding Research and Education Programs

NSF provides support for approximately 20 percent of all federally funded basic science and is the major source of support for non-medical biology research. This includes integrative, comparative, and evolutionary biology, as well as interdisciplinary biological research. Time and time again we have seen that the knowledge gained through basic biological research is the foundation for more applied studies that sustain the health of animals, humans and ecosystems. NSF-funded research

has led to countless new discoveries that could not have been envisioned when the research began. Nevertheless, these unforeseen applications have had enormous impact on science, health and the economy worlds.

The majority of the NSF funding is awarded through competitive, merit-based peer review. Merit review ensures that the best possible projects are supported. Both the scientific reviewers and NSF program staff consider not only the intellectual merit of each research proposal, but also its broader impacts. NSF's criteria for broader impact address the potential for research to benefit society or to achieve specific outcomes. NSF has an exemplary record of accomplishment in terms of funding research that produces results with far-reaching potential. Since its inception in 1950, NSF has supported the work of 217 Nobel Laureates, including the 2015 winners of the Chemistry and Economics prizes.

Biological research is just one part of the NSF portfolio. The APS believes that each of the NSF directorates support research that is critical to NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense . . ." Collaboration among scientific disciplines is increasingly recognized as the best and most efficient way to advance science. This will only be possible with strong support for all disciplines of research.

In addition to funding innovative research in labs around the country, the NSF education programs foster the next generation of scientists. The APS is proud to have partnered with NSF in programs to provide training opportunities and career development activities to enhance the participation of underrepresented minorities in science. We believe that NSF is uniquely suited to foster science education programs of the highest quality, and we recommend that Congress continue to provide Federal funds for science education through the NSF.

The APS joins the Federation of American Societies for Experimental Biology (FASEB) in recommending that the NSF be funded at a level of \$7.96 billion in fiscal year 2017. The NSF is poised to address major challenges facing our Nation and our world in the 21st Century. The agency is already engaged in crucial efforts to enhance understanding of everything from the human brain to how the climate is changing, but it needs adequate resources to continue to carry out its mission.

Support for Life Sciences Research Should Be Increased at NASA

NASA sponsors research across a broad range of the basic and applied life sciences, including gravitational biology, biomedical research and the Human Research Program (HRP). The gravitational biology and biomedical research programs explore fundamental scientific questions through research carried out both on Earth and aboard the International Space Station, which provides an environment for the conduct of experiments in space. NASA's HRP conducts focused research and develops countermeasures with the goal of enabling safe and productive human space exploration.

During prolonged space flight, the physiological changes that occur due to weightlessness, increased exposure to radiation, confined living quarters, and alterations in eating and sleeping patterns can lead to debilitating conditions and reduced ability to perform tasks. APS scientists are actively engaged in research that explores the physiological basis of these problems with the goal of contributing to the identification of therapeutic targets and development of novel countermeasures. The knowledge gained from this research is not only relevant to humans traveling in space, but is also directly applicable to human health on Earth. For example, some of the muscle and bone changes observed in astronauts after prolonged space flight are similar to those seen in patients confined to bed rest during periods of critical illness as well as during the process of aging.

NASA is the only agency whose mission addresses the biomedical challenges of human space exploration. Over the past several years, the amount of money available for conducting this kind of research at NASA has dwindled. The number of projects and investigators supported by NASA through the HRP has declined by 30 percent over the last twelve years; similarly, the number of projects and investigators supported through the Space Biology program has declined by more than 50 percent over that same period. (<https://taskbook.nasaprs.com/Publication/>).

In the past, appropriations legislation specified funding levels for biomedical research and gravitational biology, but recent internal reorganizations at NASA have made it difficult to understand how much money is being spent on these programs from year to year. The APS recommends that funding streams for these important fundamental research programs be clearly identified and tracked within the NASA budget. The APS also recommends restoration of cuts to peer-reviewed life sciences research to allow NASA-funded scientists to conduct research that will be critical in not only supporting the success of future long-range manned space exploration but also leading to innovative discoveries that can be applied to Earth-based medi-

cine. As highlighted above, investment in the basic sciences is critical to our Nation's technological and economic future. This innovative engine of research fuels our world leadership and our economy. The APS urges you to make every effort to provide these agencies with increased funding for fiscal year 2017.

PREPARED STATEMENT OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION
NATIONAL SCIENCE FOUNDATION

The American Psychological Association (APA) is a scientific and professional organization of more than 122,000 psychologists and affiliates. APA urges the subcommittee to fund the National Science Foundation (NSF) at \$8 billion in fiscal year 2017. The Coalition for National Science Funding (CNSF), an alliance of over 140 universities, businesses, and scientific associations (including APA) also endorses this level of support for NSF, the only Federal research agency "charged with the promotion of scientific progress across all scientific and engineering disciplines" and one that is vital to U.S. economic health, educational achievement, global competitiveness, and national security.

APA urges Congress to:

1. *Support Core Psychological Research at NSF*

NSF is the only Federal agency whose primary mission is to support basic research and education in math, engineering and science—including the behavioral and social sciences. NSF's investment in basic research across these disciplines has allowed for extraordinary scientific and technological progress, ensuring continued economic growth, improvements in the design, implementation and evaluation of public education, strengthened national security, and the generation of cutting-edge new knowledge.

Although psychologists receive funding from diverse programs within NSF, most core psychological research is supported by the Social, Behavioral and Economic Sciences Directorate (SBE), with its focus on the variables that determine human behavior across all ages, affect interactions among individuals and groups, and decide how social and economic systems develop and change. In addition to core behavioral research in cognitive neuroscience, human cognition and perception, learning and development, and social psychology, SBE will continue to invest funds to participate in initiatives and Cross Directorate programs such as Understanding the Brain (which includes cognitive science, neuroscience, and the BRAIN Initiative), Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS), Risk and Resilience, and the effort to increase participation of underrepresented groups in STEM fields (NSF INCLUDES).

The Biological Sciences Directorate at NSF also provides support for research psychologists who ask questions about the very principles and mechanisms that govern life at the level of the genome and cell, or at the level of a whole individual, family or species. In previous testimony, APA has expressed concern about diminishing support for key behavioral research programs within this Directorate, most notably those focused on learning and cognition. We urge NSF to strengthen support both in the Biological Sciences Directorate and Foundation-wide for research projects that seek to understand the neural or genetic mechanisms by which learning occurs, use learning as an assay for the effects of environmental change on a biological system, construct and evaluate artificial learning systems, conceptualize the role of learning in biodiversity and evolution, and apply learning principles to education and workforce challenges.

2. *Counter Specific Threats to NSF Merit Review and the Social and Behavioral Sciences*

Addressing questions about human behavior is as critical to our Nation's survival and well-being in a global context as investigating those physical mysteries both minute as a nanostructure and vast as the universe. Leaders in industry as well as science continue to urge Congress to stop singling out individual scientific disciplines or entire NSF Directorates, such as SBE, for elimination or further drastic reductions, and to stop attacking individual, peer-reviewed grants funding social and behavioral scientists (including psychologists). All NSF grant proposals are reviewed with two merit criteria: Intellectual Merit and Broader Impacts. Grant proposals must advance knowledge and benefit society, and for the last 60 years, NSF has used this gold-standard merit review process to review and award the best scientific, engineering, and education research. APA urges Congress to avoid attempts to substitute political review for scientific peer review.

3. *Address Increasing Investments in Science by Global Competitors: U.S. Must Not Create Innovation Deficit and Make Policy Through “Expensive Guessing”*

APA concurs with CNSF that uncertainties in the Federal budget process, deep cuts to scientific research programs due to sequestration, and legislative attacks directed at peer merit review processes and specific grants are imperiling the U.S. capacity to remain globally competitive while other nations pour enormous resources into research; leading to an innovation deficit with vast economic and national security implications; rendering our attempts to address national challenges in the areas of health, education, public safety and national security expensive guessing rather than policy—making based on empirical data; adding to job loss and reduced productivity in States and districts across the country, which otherwise would continue to benefit from the scientific enterprise and resulting technology transfer; and further restricting the pipeline for our future scientific workforce.

DEPARTMENT OF JUSTICE

APA is deeply committed to reforming the criminal justice system, supporting those with mental illness within this system, and ensuring that the best scientific evidence is funded and used to make programmatic and policy changes.

APA urges Congress to:

1. *Reduce Incarceration, Protect Public Safety, and Provide Better Stewardship of Tax Dollars*

APA strongly supports bipartisan efforts in Congress to reform the Federal criminal justice system. The vast majority of incarcerated offenders return from jail or prison to their communities, and an estimated 77 percent of former prisoners are rearrested within 5 years of release. This represents a systemic failure which Congress and many States are making important steps to redress. Fiscal year 2017 appropriations for DOJ represent another avenue for reform and to reduce the burden of incarceration on public coffers and affected families and communities.

Achieving these goals requires a shift in strategy and funding priorities. To this end, APA applauds many themes of the DOJ fiscal year 2017 budget request and urges the subcommittee to adopt a similar approach in appropriations for the Bureau of Prisons (BOP) and Office of Justice Programs (OJP).

DOJ projects a \$210.8 million decrease in BOP operating costs this year, due to decreases in the prison population, and APA supports DOJ’s proposals to reinvest much of this savings into enhancements to help BOP continue to reduce population numbers. Specifically, APA urges the subcommittee to provide BOP with an additional: \$9.7 million for mental health staff; \$20 million for changes to restrictive housing intended to provide better alternatives for individuals with mental illness; \$42.6 million for cognitive behavioral treatment in residential treatment centers; and \$91.3 million to facilitate prisoner reentry, by enhancing pre-release programming, increasing available reentry center beds, facilitating prisoner-family connections, and improving educational and vocational training. These investments will make offenders more likely to thrive and maintain employment when they return to the community, which protects public safety, makes families stronger, and adds to the tax base.

APA also urges the subcommittee to adequately fund a number of priorities at OJP to support similar reforms in State prison and local jail systems. Several States have provided leadership in reducing unnecessary incarceration, and OJP can help ensure other States gain the benefits of similar reforms. APA specifically requests that the subcommittee provide: \$100 million for the Second Chance Act; \$30 million for Justice Reinvestment; \$5.4 million for the Indigent Defense Initiative (Answering Gideon’s Call); \$58 million for Criminal Justice Statistics; and \$48 million for Research, Development, and Evaluation within the National Institute of Justice (including \$3 million for Social Science Research on Indigent Defense).

Finally, APA asks the subcommittee to provide strong funding for juvenile justice programming, to support intervention in the lives of young people while the chances are highest for them to develop along a healthy, productive, and fulfilling trajectory. APA requests: \$80 million for juvenile justice Part B formula grants; \$10 million for girls in the juvenile justice system; \$4 million for the National Forum on Youth Violence Prevention; \$25 million for the Community-Based Violence Prevention Initiative; \$42 million for the Delinquency Prevention Program (Title V); \$5.4 million for the Improving Juvenile Indigent Defense Program; \$30 million for the Juvenile Accountability Block Grant; \$20 million for the Smart on Juvenile Justice Initiative; and \$23 million for the Defending Childhood initiative.

2. *Address Mental Illness and Reduce Strain on Criminal Justice Systems*

APA strongly supports diversion from deeper levels of justice system involvement, when public safety allows, so that individuals with mental illness can obtain the care they need. Law enforcement officers who serve on crisis intervention teams (CIT) divert individuals pre-arrest and connect them with public mental health resources; problem-solving courts provide pre-trial diversion, while maintaining the accountability of court supervision; and probation provides community corrections alternatives to incarceration that also maintain accountability and provide community mental health resources. Diversion also allows criminal justice agencies to focus on those individuals for whom correctional custody is deemed necessary, and this includes providing the mental and behavioral healthcare to which inmates have a constitutional right.

To support important State and local government efforts across the Nation in addressing the high rate of mental and behavioral health needs among those in contact with criminal justice systems, APA asks the subcommittee to provide the Bureau of Justice Assistance (BJA) with: \$14 million for the Justice and Mental Health Collaboration Program (formerly MIOTCRA); \$42 million for the Drug Court Program; \$6 million for Veterans Treatment Courts; and \$7.5 million for the new National Training Center to Improve Police-Based Responses to People with Mental Illness. APA notes the particular importance of funding this new national center, given current gaps between CIT training demand and opportunities.

3. *Support Improved Police-Community Relations*

DOJ has supported an initial round of review and reforms (e.g., the Presidential Task Force on 21st Century Policing and police body-worn camera activities) to help address the crisis in trust between communities of color and law enforcement agencies. APA urges the subcommittee to provide adequate funding to BJA, Community Oriented Policing Services, and the Office of Juvenile Justice and Delinquency Prevention to support additional Federal, State, and local activities, by providing: \$30 million to the Body-Worn Camera Partnership Program; \$10 million for the Smart Policing—Body-Worn Camera Demonstration; and \$20 million for Procedural Justice—Building Community Trust. APA recognizes the strain for all involved when mistrust exists between minority communities and law enforcement and believes that these investments can help replace destructive mistrust with mutually beneficial partnerships.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM) recommends that Congress approve a budget of \$8 billion for the National Science Foundation (NSF) for fiscal year 2017. This level of funding would provide 4 percent real growth in NSF research funding. The NSF supports one quarter of all federally funded research at U.S. colleges and universities; or more than 1,800 colleges, universities and other institutions in all 50 States, the District of Columbia and Puerto Rico. In 2017, NSF will directly support about 377,000 researchers, postdoctoral fellows, trainees, teachers and students. NSF funding is irreplaceable for much of the basic research that underlies U.S. innovation.

NSF PROGRAMS EXPAND U.S. SCIENCE AND ENGINEERING

Over 90 percent of the fiscal year 2017 NSF budget would fund research, education and related activities, largely as competitive awards in the form of grants or cooperative agreements. The budget request includes a special focus on support for early career investigators. More than three quarters of the NSF's budget is allocated to U.S. colleges and universities, not only directly underwriting research projects but also training the Nation's future scientists and engineers. Other recipients of NSF funding include; private industry, all levels of government, nonprofits and international organizations.

Sustained NSF investments in basic research and the people who make the discoveries are crucial to stimulating the U.S. economy, enhancing the lives of people and shaping a future improved by science and technology. NSF grants have supported nearly 220 Nobel Prize winners. In fiscal year 2017, the agency expects to evaluate more than 52,000 research proposals and make over 12,000 new awards. The proposed funding levels in the administration's NSF budget would allow an estimated 800 additional grants, raising funding success to a projected 23 percent rate.

NSF SUPPORT ADVANCES BIOLOGICAL SCIENCES

The NSF funds nearly 70 percent of basic biology research at the Nation's academic institutions. Advances in bioscience and environmental biology clearly depend heavily upon NSF appropriations. Broad support for biology produces knowledge essential to the Nation's agriculture, health and environment. NSF supported research has already spawned many innovations that push today's growing bio economy in areas such as biofuels, bio renewable chemicals and nanotechnology.

In the fiscal year 2017 request, the Directorate for Biological Sciences (BIO) receives \$790.5 million, or a 6.2 percent increase from fiscal year 2016. In fiscal year 2017, BIO expects to receive 6,200 proposals for competitive awards, approving 1,600 new awards. BIO funding includes studies of molecules, cells, tissues, organs, organisms, populations, communities, ecosystems and the global biosphere. The directorate regularly partners in multidisciplinary efforts with programs in chemistry, engineering, mathematics, computer sciences and more. It is the Nation's principal supporter of basic studies in environmental biology, biodiversity and plant biology. The fiscal year 2017 budget will be distributed via BIO's five divisions: Molecular and Cellular Biosciences (MCB), Biological Infrastructure (DBI), Environmental Biology (DEB), Integrative Organismal Systems (IOS) and Emerging Frontiers (EF). BIO also supports the Plant Genome Research Project (PGRP) and the National Ecological Observatory Network (NEON), as well as myriad programs for education and career development in the biological sciences.

In fiscal year 2017, BIO will solicit research proposals that align with the directorate's new Rules of Life emphasis that includes the genotype to phenotype challenge; plant and microbial sciences, including study of the microbiome; synthetic biology and the origin of life. The directorate expects extensive integration with mathematical and physical sciences, computer science and engineering. As another example of BIO's broad strategy, MCB's support of synthetic biology encourages work with other divisions and directorates to develop tools that advance bio manufacturing, biofuels and novel biomaterials for our bio economy. This includes additional investment related to the CRISPR/Cas9 genome editing technology.

The ASM strongly supports a fiscal year 2017 increase for microbiome research of \$2.7 million, for a total investment of \$16.4 million. NSF supported studies have already contributed to the Federal strategy to understand and utilize microbiomes, which are the collective microorganisms that live in, on and around plants and animals. Microbiome researchers investigate the role of microbes in plant and animal function, productivity, health and resilience to environmental change, as well as microbes' role in soil and marine ecosystems. Studies are highly diverse in scale and subject; for example, metagenomics (the entirety of collective genomes in microbial communities), the composition of individual communities and collective metabolic activity within a specified microbiome.

In the past year, NSF supported research on microbiomes has reported on how the composition of microbial communities may respond to changing conditions, how plant defense hormones help determine root microbiomes comprising microbes that protect against pathogens, how the gut microbiomes of baboons living together become similar and the suspected link between high fat and high sugar diets, intestinal bacteria and cognitive function.

NSF supported projects frequently incorporate microorganisms as research tools or targets, integral to discoveries in health, agriculture, environment, sustainability, bio manufacturing and much more. Examples from the past year point to NSF's unique role in U.S. research:

- Scientists have modified a plant gene that normally helps fight bacterial infection (*Pseudomonas syringae*) to instead fight viral infection (turnip mosaic and tobacco etch viruses), the first time a plant's innate defense system has been altered to confer resistance to a new disease.
- Bacteria in biofilms communicate with one another via electrical signaling similar to neural communications in the brain, according to researchers who earlier described how biofilm communities internally resolve resource shortages and metabolic stress.
- The first atlas of airborne microbes across the continental United States identified more than 110,000 bacterial and 55,000 fungal species, baseline data with implications for health and disease in the public, agriculture and the environment.

NSF PARTNERSHIPS PROMOTE CROSS CUTTING RESEARCH

Among the many strengths of NSF's fiscal year 2017 portfolio is the agency's ambitious vision of cross cutting discovery. NSF excels at stimulating multidisciplinary research that draws best practices and leading edge technologies from diverse sci-

entific and engineering disciplines, often leveraging systems level strategies. Several fiscal year 2017 efforts epitomize greater emphasis on creative partnerships:

- Expanded agency wide efforts and external partnerships will accelerate the INFEWS initiative (Innovations at the Nexus of Food, Energy and Water Systems).
- The NSF wide BioMaPS program, with an emphasis in synthetic biology at the intersection of biology, engineering and physical sciences, expects new potentially valuable outcomes. Many synthetic biology products are currently poised for commercialization, such as biofuels, drugs and food additives. New research promises advances in important economic sectors like agriculture, industry and medicine.
- BIO will assume full operation of the soon to be completed NEON network for ecological research, built on partnerships with other NSF entities and private organizations. Using sensor sites and cyberinfrastructures, it is the first research platform to collect standardized data nationwide.
- Scientists with the Ecology and Evolution of Infectious Diseases Initiative (EEID), a joint NIH, NSF, Department of Agriculture (USDA) effort, are studying the mosquito borne transmission of Zika and dengue viruses in Ecuador, in the context of socioecological and environment's effects on disease spread.
- The new BIO USDA Plant Biotic Interactions (PBI) program will make its first grant awards during fiscal year 2017, in areas that include plant microbiomes, pathogens and defenses.

The ASM appreciates the opportunity to submit testimony and urges Congress to fund NSF with \$8 billion in fiscal year 2017. NSF funded research is a cornerstone of U.S. innovation in science and technology with vast benefits across the Nation and around the world.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
(ASME)

As the Federal budget faces increased scrutiny due to sequester spending caps, it is important that research and development remain among the highest priorities for domestic discretionary spending. Scientific and engineering research have long been the foundation of our Nation's economic growth and prosperity and have positioned the U.S. as a global leader in innovation. Our country's economic strength derives from our ability to produce the world's best scientists and engineers, nurture new ideas and innovation, and develop new technologies and industries. Now, however, with other countries investing more heavily in basic and applied research, it is becoming difficult for the U.S. to keep pace. If America is to remain a global economic leader, we must continue to invest in the scientific and engineering enterprise that generates new technologies, industries, and jobs. The ASME Manufacturing Public Policy (MPP) Task Force strongly supports the President's budget request and urges Congress to fully fund basic research and the programs outlined below so that the full national security and economic benefits of our domestic innovations can be realized.

OVERVIEW OF NIST'S FISCAL YEAR 2016 BUDGET REQUEST

(\$ in millions)

	Fiscal Year 2016 Enacted	Fiscal Year 2017 Requested	Increase (%)	Increase (\$)
NIST	964	1,000	5.2	36
STRS	690	730.5	5.9	40.5
ITS	155	189	22	34
NNMI	25	47	88	22
MEP	130	142	9.2	12

The MPP Task Force strongly supports the administration's budget request of \$1 billion for NIST in fiscal year 2017. This represents a 5.2 percent or \$36 million increase over fiscal year 2016 enacted levels.

The National Network for Manufacturing Innovation (NNMI)

The MPP Task Force strongly supports dedicating \$47 million to funding new and established National Network for Manufacturing Innovation (NNMI) Institutes.

ASME has long supported the creation of a national network of manufacturing Institutes to work towards bridging the gap between basic research and market impact of technology. The administration's continued efforts to fund Department of Commerce-led NNMI Institutes through NIST reflects the vital role NIST plays in the administration's goal of creating a fully operational innovation pipeline.

The NNMI achieves this goal by providing a "manufacturing research infrastructure where U.S. industry and academia collaborate to solve industry-relevant problems. The NNMI is a network of Institutes for Manufacturing Innovation, each with a unique focus but a common goal to create, showcase, and deploy new capabilities and new manufacturing processes."¹

In addition to the \$47 million in discretionary funds for NNMI, the President's budget requests an additional \$1.9 billion in mandatory funding for NNMI over the next 10 years to achieve the administration's goal of a national network of 45 manufacturing Institutes.

Hollings Manufacturing Extension Partnership (MEP)

The MPP Task Force has long supported MEP as a catalyst for technological innovation and is pleased with the administration's request of \$142 million. MEP provides support to small and medium-sized manufacturers (SMMs) across the United States and Puerto Rico to develop sustainable practices in the U.S. These SMMs are crucial to the U.S. economy as they support and create a significant number of jobs focused in product commercialization, lean production, process improvements, and supply chain optimization.

Construction of Research Facilities (CRF)

NIST laboratories remain a critical resource that is vital to the economic health and national security of the United States, as outlined in the President's Innovation Agenda, inspired by the original "America COMPETES Act of 2007" (Public Law 110-69). The NIST engineering laboratory "promotes the development and dissemination of advanced technologies, guidelines, and services to the U.S. manufacturing and construction industries through activities including measurement science research, performance metrics, tools and methodologies for engineering applications, and critical technical contributions to standards and codes development." The upkeep and modernization of our laboratories is at the very crux of the research done at NIST, and without proper funding for our facilities and equipment, important programs suffer. The MPP Task Force supports the administration's request for \$95 million in discretionary funds for Construction of Research Facilities in fiscal year 2017.

NIST'S STANDARDS MISSION

Part of the mission of NIST is to promote the use of American standards, conformity assessment programs and technology in countries and industries around the world as a means of enhancing U.S. competitiveness and opening new markets for U.S. products and services. Standards provide technical definitions and guidelines for design and manufacturing. They serve as a common, global language, define quality and establish safety criteria. In the United States, standards are developed by private-sector organizations in close collaboration with representatives from industry, government, and academia. These standards are used by industry and are frequently adopted by government agencies as a means of establishing regulatory requirements. They are vital to the economic health of many industries, and—more importantly—they help to ensure the health and safety of the American people and citizens in countless nations around the world.

As a standards developer, ASME is in an outstanding position to describe the value of NIST standardization efforts and their impact on American commerce. Over the years, the Department of Commerce and NIST have played an indispensable role in ensuring acceptance by other nations of U.S.-developed standards that continue to identify and incorporate technological advances and that also reflect changing needs for industry, regulation, and public safety. Unlike in the U.S. where standards development is largely the province of private sector organizations, standards development in many other countries is undertaken with strong government support. The U.S. voluntary consensus standards process enables innovation, reduces redundancy in public and private sector research, and reduces government costs. The governments of many of our key trading partners invest significant resources to promote acceptance of competing standards (developed by organizations in those countries) in the global marketplace. It is therefore essential that the U.S. Government, in partnership with private sector standards development organiza-

¹ Manufacturing.gov.

tions, strengthen its commitment to ensuring adequate representation of U.S. interests in international standards negotiations.

Enabling U.S. manufacturers to design and build to one standard or set of standards increases our competitiveness in the world market. Similarly, decisions made in standards bodies outside of the United States have a profound impact on the ability of U.S. companies to compete in foreign markets. The ability of NIST to assist U.S. standards developers in their negotiations with international standards organizations is important to the U.S. business community. The U.S. must be a full participant in global standards development if our industries are to compete effectively in a world market. We believe that NIST plays a unique and crucial role in maintaining, and growing, the competitive edge of U.S. industry in the emerging landscape of the high technology manufacturing sector.

CONCLUSION

The administration's commitment to NIST appears to be strong, as demonstrated by its willingness to support increases for key NIST initiatives for fiscal year 2017. The full funding of the NNMI and MEP programs are crucial for the U.S. to remain competitive globally over the next several decades. The Task Force remains strongly supportive of these initiatives as well as the underlying goals of NIST as they relate to advanced manufacturing and technological innovation.

INTRODUCTION TO ASME AND THE MPP TASK FORCE

The National Institute of Standards and Technology (NIST) Task Force of the Committee on Government Relations Inter-Sector Committee on Federal R&D of the ASME Public Affairs and Outreach Sector is pleased to have this opportunity to provide comments on the fiscal year 2017 budget request for NIST. The MPP Task Force and ASME Standards & Certification have a long-standing relationship with NIST and thus recognize NIST as a key government agency that contributes significantly to the development and application of technology.

Founded in 1880 as the American Society of Mechanical Engineers, ASME is a worldwide engineering society of over 140,000 members focused on technical, educational and research issues. ASME conducts one of the world's largest technical publishing operations, holds approximately 30 technical conferences and 200 professional development courses each year, and sets many industry and manufacturing standards.

Mechanical engineers play a key role in the research, technology development, and innovation that influence the economic wellbeing of the Nation. ASME has supported the mission of NIST since it was founded in 1901, as the National Bureau of Standards. In fact, ASME was instrumental in establishing the Department of Commerce, NIST's parent agency. The technical programs of NIST are unique in that they foster government and industry cooperation through cost-sharing partnerships that create long-term investments based on engineering and technology. These programs are aimed at providing the technical support so vital to our nation's future economic health.

Statement approved by the ASME Manufacturing Public Policy Task Force (MPPTF).

ASME is a non-profit technical and educational organization with more than 140,000 members globally. The Society's members work in all sectors of the economy, including industry, academia, and government. This position statement represents the views of the MPP Task Force of the Committee on Government Relations Inter-Sector Committee on Federal R&D of the ASME Public Affairs and Outreach Sector and is not necessarily a position of ASME as a whole.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF PLANT BIOLOGISTS

On behalf of the American Society of Plant Biologists (ASPB), I submit this testimony for the official record to support the requested level of \$8 billion for the National Science Foundation (NSF) for fiscal year 2017. ASPB recognizes the difficult fiscal environment our Nation faces, but we believe that sustained investments in scientific research will be a critical step toward economic recovery and continued global competitiveness for our Nation.

ASPB would like to thank the subcommittee for its consideration of this testimony and for its strong support for the research mission of NSF.

Our testimony will discuss:

—Plant biology research as a foundation for addressing food, fuel, environment, and health concerns;

- The rationale for robust funding for NSF to maintain a well-proportioned science portfolio; and
- The rationale for continued funding of NSF education and workforce development programs that provide support for the future scientific and technical expertise critical to America’s competitiveness.

ASPB is an organization of professional plant biology researchers, educators, graduate students, and postdoctoral scientists with members across the Nation and throughout the world. A strong voice for the global plant science community, our mission—achieved through work in the realms of research, education, and public policy—is to promote the growth and development of plant biology, to encourage and communicate research in plant biology, and to promote the interests and growth of plant scientists in general.

FOOD, FUEL, ENVIRONMENT, AND HEALTH: PLANT BIOLOGY RESEARCH AND AMERICA’S FUTURE

Plants are vital to our very existence. They harvest sunlight, converting it to chemical energy for food and feed; they take up carbon dioxide and produce oxygen; and they are the primary producers on which most life depends. Indeed, plant biology research is making many fundamental contributions in the areas of energy security and environmental stewardship; the continued and sustainable development of better foods, fabrics, and building materials; and in the understanding of biological principles that underpin improvements in the health and nutrition of all Americans.

In particular, plant biology is at the interface of numerous scientific breakthroughs. For example, with high throughput experimental approaches facilitating extraordinary syntheses of information that are NSF-supported, plant biologists are using computer science applications to make tremendous strides in our understanding of complex biological systems, ranging from single cells to entire ecosystems. Understanding how plants function ultimately will result in better and more productive crops, new sources of fuel, and the development of better medicines to treat diseases like cancer.

Despite the significant positive impact plants have on our Nation’s economy and in addressing some of our most urgent challenges, including food and energy security, Federal investments in fundamental plant biology research are modest. Still scientists have maximized and leveraged this funding in order to understand the basic function and mechanisms of plants, providing a foundation for vital advances in practical applications in agriculture, health, energy, and the environment.

To address future societal challenges that might be mitigated through investments in plant biology research and to prioritize community research efforts, ASPB organized a two-phase Plant Science Research Summit with funding from NSF, the U.S. Department of Agriculture, the Department of Energy, and the Howard Hughes Medical Institute that resulted in the development of a community agenda document: *Unleashing a Decade of Innovation in Plant Science: A Vision for 2015–2025* (plantsummit.files.wordpress.com/2013/07/plantsciencedecadalvision10-18-13.pdf). The report, part of an ongoing and iterative process, puts forth a 10-year consensus agenda to fill critical gaps in our understanding of plant biology in order to address the grand challenges we face. As a research community, our vision is to create plant systems that are flexible and adaptable to new and existing challenges by increasing the predictive and synthetic abilities of plant biology. In achieving these goals, the plant science research community will make significant contributions to:

- exploring, conserving and utilizing our natural resources;
- protecting, maintaining and improving crop productivity; and
- creating new plant-inspired industries.

ROBUST FUNDING FOR THE NATIONAL SCIENCE FOUNDATION

ASPB encourages the greatest possible support for the Directorate of Biological Sciences (BIO) and proportional funding increases across all of the scientific disciplines NSF supports. As scientific research becomes increasingly interdisciplinary with permeable boundaries, a diverse portfolio at NSF is needed to maintain transformational research and innovation.

NSF funding for plant biology specifically enables the scientific community to address cross-cutting research questions that could ultimately solve grand challenges related to a sustainable food supply, energy security, and improved health and nutrition. This notion is reflected in the National Research Council’s report *A New Biology for the 21st Century*.

NSF BIO is a critical source of funding for scientific research, providing the majority of the Federal support for non-medical basic life sciences research at U.S. academic institutions and beyond. BIO supports research ranging from the molecular and cellular levels to the organismal, ecosystem, and even biosphere levels. These investments continue to have significant pay offs, both in terms of the knowledge directly generated and in deepening collaborations and fostering innovation among communities of scientists. This increase is needed as BIO received only a 1 percent increase in fiscal year 2016, and a 2 percent increase in fiscal year 2015, which when adjusted for inflation, actually represents a loss in purchasing power.

The Biological Sciences Directorate's Plant Genome Research Program (PGRP) is an excellent example of a high impact program that has laid a strong scientific research foundation for understanding plant genomics as it relates to energy (biofuels), health (nutrition and functional foods), agriculture (impact of changing climates on agronomic ecosystems), and the environment (plants' roles as primary producers in ecosystems). ASPB asks that the PGRP be funded at the highest possible level and have sustained funding growth to address 21st century challenges. Furthermore, in light of the need to create cyberinfrastructure across a wide range of scientific disciplines, ASPB supports efforts to homogenize metadata formats and enhance data sharing.

ASPB also supports the proposed new program, Rules of Life, within the BIO Directorate. This program would support research on genotype to phenotype studies, as well as plant science, microbiome, and synthetic biology. Research supported by Rules of Life will encourage using quantitative approaches to advance biological research, increasing the use of innovative new methods and interdisciplinary approaches to complex research questions. ASPB supports the proposed \$13 million for the new Rules of Life program within NSF BIO.

Without significant and increased support for BIO and the NSF as a whole, promising fundamental research discoveries will be delayed and vital collaborations around the edges of scientific disciplines will be postponed, thus limiting the ability to respond to the pressing scientific problems that exist today and the new challenges on the horizon. Addressing these scientific priorities also helps improve the competitive position of the United States in a global marketplace.

CONTINUED SUPPORT FOR NSF EDUCATION AND WORKFORCE DEVELOPMENT PROGRAMS

The National Science Foundation is a major source of funding for the education and training of the American scientific workforce and for understanding how educational innovations can be most effectively implemented. NSF's education portfolio impacts students at all levels, including K–12, undergraduate, graduate, and post-graduate, as well as the general public.

ASPB urges the subcommittee to support expanding NSF's fellowship and career development programs—such as the Postdoctoral Research Fellowships in Biology, the Graduate Research Fellowship (GRF) and the Faculty Early Career Development (CAREER) programs—thereby providing continuity in funding opportunities for the country's most promising early career scientists.

Furthermore, the nearly 7-year median for a life-science PhD in the United States contrasts with other nations where students specialize earlier, thus entering doctoral programs with more uniform and advanced scientific foundations. To focus more attention on new types of skills, such as private-sector experience and data-science training, NSF may wish to consider encouraging universities to tailor undergraduate curricula to allow committed students to enter PhD programs without needing a significant amount of textbook-style coursework. One way to do so would be to offer a seamless, 7-year curriculum that combines bachelor's and doctoral education, thereby making the career path more attractive and reducing costs to investigators, institutions, and funding bodies. NSF may wish to fund exploration and development of this kind of program or curriculum.

ASPB urges support for NSF to further develop programs aimed at increasing the diversity of the scientific workforce by leveraging professional scientific societies' commitment to provide a professional home for scientists throughout their education and careers and to help promote and sustain broad participation in the sciences. Discrete focused training and infrastructure support programs for Hispanic Serving Institutions, Historically Black Colleges and Universities, and Tribal Colleges and Universities remain vitally important, because they foster a scientific workforce that reflects the U.S. population.

ASPB urges support for education research that enhances our understanding of how educational innovations can be sustainably and most effectively implemented in a variety of settings. NSF Education and Human Resources programs provide opportunities to expand NSF's research and evaluation efforts to address scale-up and

sustainability. ASPB encourages continued support for education research programs within NSF's Education and Human Resources portfolio with a focus on understanding how previous investments in educational strategies can be made most effective.

Grand research challenges will not be resolved in a year, an administration, or a generation, but will take continued attention and investment at Federal research agencies, such as the National Science Foundation, over decades.

Thank you for your consideration of ASPB's testimony. For more information about ASPB, please visit us at www.aspb.org.

PREPARED STATEMENT OF THE ASSOCIATION OF SCIENCE-TECHNOLOGY CENTERS

Introduction

Chairman Shelby, Ranking Member Mikulski, and members of the subcommittee, thank you for the opportunity to submit written testimony for the record. My name is Anthony (Bud) Rock, and I serve as the President and Chief Executive Officer of the Association of Science-Technology Centers (ASTC). My testimony today addresses the importance of science, technology, engineering, mathematics (STEM), and environmental education, and will focus specifically on the fiscal year 2017 budgets for four specific programs at three Federal agencies over which your subcommittee has jurisdiction: (1) the Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers Plus Other Opportunities (CP4SMP+) at the National Aeronautics and Space Administration (NASA), which would not be funded under the President's fiscal year 2017 request; the Bay-Watershed Education and Training (B-WET) Regional Programs and Competitive Education Grants (CEG)/Environmental Literacy Grants (ELG) programs at the National Oceanic and Atmospheric Administration (NOAA), which would not be funded under the President's fiscal year 2017 request; and the Advancing Informal STEM Learning (AISL) program at the National Science Foundation (NSF), which would receive \$62.5 million under the President's fiscal year 2017 request (although only \$55 million of that amount is being requested from traditional discretionary spending).

Our Request

On behalf of ASTC and the nearly 400 science centers and museums we represent here in the United States, I urge the subcommittee to continue its strong support for critical STEM and environmental education programs within NASA, NOAA, and NSF as the Commerce, Justice, Science, and Related Agencies Appropriations Bill for Fiscal Year 2017 moves forward. Specifically, I urge you to:

- Provide \$10 million for the Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers Plus Other Opportunities at the National Aeronautics and Space Administration.
- Provide \$12 million for the Bay-Watershed Education and Training Regional Programs and \$8 million for the Competitive Education Grants/Environmental Literacy Grants programs at the National Oceanic and Atmospheric Administration.
- Provide \$62.5 million for the Advancing Informal STEM Learning program at the National Science Foundation.
- Continue to thoroughly examine any proposals that would seek to consolidate, reorganize, or eliminate Federal STEM and environmental education programs in an effort to ensure that stakeholder input has been sought and that proven, successful programs are maintained.

Before providing more detail about ASTC and the science center and museum field, I want to first offer a brief snapshot of these Federal programs and why they are so vital to communities across the country.

National Aeronautics and Space Administration

NASA's Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers Plus Other Opportunities provides support for education or research engagement projects, exhibits, and/or partnerships with K-12 schools to support inquiry- or experiential-based activities led by informal education institutions—like science centers and museums—that feature NASA missions, science, engineering, explorations, or technologies.

Though Congress—and this subcommittee in particular—have been very supportive of this program since its inception in fiscal year 2008, NASA has not indicated how much (if any) fiscal year 2015 or fiscal year 2016 funds will be available for new grants. The agency did, however, recently invite eligible grantees to submit new proposals for funding, which were due on December 7, 2015. With regard to

fiscal year 2017 funding, the President did not include any funding for the program in his budget request. I encourage the subcommittee to continue its strong support for the CP4SMP+ by providing \$10 million for fiscal year 2017.

National Oceanic and Atmospheric Administration

NOAA's Bay-Watershed Education and Training Regional Program offers competitive grants to promote locally relevant, authentic experiential learning focused on K–12 audiences. The program serves seven areas of the country (California, the Chesapeake Bay, the Great Lakes, the Gulf of Mexico, Hawai'i, New England, and the Pacific Northwest) and supports activities inside and outside of the classroom while seeking to increase the understanding and stewardship of watersheds and related ocean, coastal, riverine, estuarine, and Great Lakes ecosystems. Last September, NOAA announced that 84 new and continuing projects—including those in Alabama, California, Connecticut, Delaware, Maine, Maryland, and Rhode Island—would benefit from a total of over \$7 million in appropriated funding for the program.

NOAA's Competitive Education Grants/Environmental Literacy Grants program, which the agency touts as "the longest-standing and most comprehensive national grants program focused on environmental literacy," aims to increase the understanding and use of environmental information to promote stewardship and increase informed decisionmaking by U.S. educators, students, and the public. In its 2015 ELG funding announcement, NOAA challenged applicants to develop proposals that specifically addressed community resilience to extreme weather events and environmental changes, one of the agency's prime areas of focus. Since its inception, NOAA has made 80 ELG awards to 60 institutions across the country who, in turn, count nearly 30 million visits each year. Despite this broad, nationwide reach, the President's fiscal year 2017 budget request once again proposes the termination of both the B-WET and the CEG/ELG programs, which received \$7.2 million and \$3 million, respectively, for fiscal year 2016. I urge the subcommittee to remain supportive of the programs by providing \$12 million in funding for B-WET and \$8 million in funding for CEG/ELG for fiscal year 2017.

National Science Foundation

The Advancing Informal STEM Learning program, offered by the Directorate for Education and Human Resources, typically provides resources to support design, adaptation, implementation, and research on innovative modes of learning in the informal environment, with important emphases on citizen science, making, and cyberlearning. Just last year, new awards were made to the Exploratorium (San Francisco), the Museum of Science and Industry (Chicago), Northwestern University, the University of Maryland Center for Environmental Sciences, the University of Maryland at College Park, the University of Wisconsin-Madison, West Virginia University, and ASTC itself, to name just a few.

While the President's fiscal year 2017 budget request technically includes level funding of \$62.5 million for AISL, I must point out that a significant portion of the total, \$7.5 million, would come from newly-proposed mandatory funding rather than via discretionary (CJS appropriations) sources. As a result, I encourage the subcommittee to provide \$62.5 million in fiscal year 2017 funding for AISL.

STEM Education Consolidation and Reorganization

With regard to the Federal STEM education consolidation plan first released by the administration for fiscal year 2014 and amended in subsequent budget requests, I continue to have serious concerns about proposals to eliminate effective programs that support informal STEM learning. Integral Federal investments, including the aforementioned NASA and NOAA offerings, are once again slated for elimination in fiscal year 2017. I sincerely appreciate the subcommittee's thoughtful consideration of the harmful effect of the proposed terminations, and ask you to remain steadfast in your support of these programs.

About ASTC and Science Centers

The Association of Science-Technology Centers is a global organization providing collective voice, professional support, and programming opportunities for science centers, museums, and related institutions, whose innovative approaches to science learning inspire people of all ages about the wonders and the meaning of science in their lives. Science centers are sites for informal learning, and are places to discover, explore, and test ideas about science, technology, engineering, mathematics, health, and the environment. They feature interactive exhibits, hands-on science experiences for children, professional development opportunities for teachers, and educational programs for adults. As Members of this subcommittee know, it is imperative that we spark an interest in STEM fields at an early age, an elemental role

of community-based science centers and museums who often undertake the effort with modest, but vital, support from NASA, NOAA, NSF, and other Federal agencies.

ASTC works with science centers and museums to address critical societal issues, locally and globally, where understanding of and engagement with science are essential. As liaisons between the science community and the public, science centers are ideally positioned to heighten awareness of critical issues like agriculture, energy, the environment, infectious diseases, and space; increase understanding of—and exposure to—important and exciting new technologies; and promote meaningful exchange and debate between scientists and local communities.

ASTC now counts 651 members, including 486 operating or developing science centers and museums in 42 countries. Collectively, our institutions garner 100 million visits worldwide each year. Here in the United States alone, your constituents pass through science center doors 69 million times to participate in intriguing educational science activities and explorations of scientific phenomena.

Science centers come in all shapes and sizes, from larger institutions in big metropolitan areas to smaller centers in somewhat less populated ones. ASTC represents institutions as diverse as the Anchorage Museum at Rasmuson Center (Alaska); the Connecticut Science Center (Hartford); the Creative Discovery Museum (Chattanooga, Tennessee); ECHO, Leahy Center for Lake Champlain (Burlington, Vermont); the EdVenture Children's Museum (Columbia, South Carolina); the Mid-America Science Museum (Hot Springs, Arizona); Science Museum Oklahoma (Oklahoma City); SEE Science Center (Manchester, New Hampshire), and the U.S. Space and Rocket Center (Huntsville, Alabama).

Our centers reach a wide audience, a significant portion of which are school groups. Here in the U.S., 94 percent of our members offer school field trips, and we estimate that more than 13 million children attend science centers and museums as part of those groups each year. Field trips, however, are truly just the beginning of what science centers and museums contribute to our country's educational infrastructure, as: 92 percent offer classes and demonstrations; 90 percent offer school outreach programs; 76 percent offer workshops or institutes for teachers; 74 percent offer programs for home-schoolers; 67 percent offer programs that target adult audiences; 65 percent offer curriculum materials; 50 percent offer after-school programs; 34 percent offer youth employment programs; and 22 percent offer citizen science projects.

Conclusion

With this in mind, and while I am fully aware of the significant budget challenges that face this subcommittee, the full Appropriations Committee, Congress, and the Nation, I hope you will continue to recognize the important educational offerings science centers and museums make available to students, families, and teachers, along with the essential Federal support they receive from NASA, NOAA, and NSF.

Again, I respectfully request that you provide \$10 million for the Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers Plus Other Opportunities at the National Aeronautics and Space Administration; \$12 million for the Bay-Watershed Education and Training Regional Programs and \$8 million for the Competitive Education Grants/Environmental Literacy Grants program at the National Oceanic and Atmospheric Administration; and \$62.5 million for the Advancing Informal STEM Learning program at the National Science Foundation. In addition, please continue to closely examine any proposals that would seek to consolidate, reorganize, or eliminate Federal STEM and environmental education programs in an effort to ensure that stakeholder input has been sought and that proven, successful programs are maintained.

Thank you once again for your strong support for America's science centers and museums—and for the opportunity to present these views. My staff and I would be happy to respond to any questions or provide additional information as needed by the subcommittee.

PREPARED STATEMENT OF THE ASSOCIATION OF ZOOS AND AQUARIUMS

Thank you, Chairman Shelby and Ranking Member Mikulski for allowing me to submit testimony on behalf of the Nation's 215 AZA-accredited zoos and aquariums. Specifically, I want to express my support for the inclusion of \$4 million for the John H. Prescott Marine Mammal Rescue Assistance Grant Program, \$8,000,000 for the NOAA Environmental Literacy Grants Program (including funding for ocean education grants), \$12,000,000 for the Bay Watershed Education and Training Pro-

gram, and \$8,000,000 for the Marine Debris Program in the fiscal year 2017 Commerce, Justice, Science, and Related Agencies appropriations bill.

Founded in 1924, the Association of Zoos and Aquariums (AZA) is a nonprofit 501c(3) organization dedicated to the advancement of zoos and aquariums in the areas of conservation, education, science, and recreation. AZA-accredited zoos and aquariums annually see more than 183 million visitors, collectively generate more than \$17 billion in annual economic activity, and support more than 166,000 jobs across the country. Over the last 5 years, AZA-accredited institutions supported more than 4,000 field conservation and research projects with \$160,000,000 annually in more than 100 countries. In the last 10 years, accredited zoos and aquariums formally trained more than 400,000 teachers, supporting science curricula with effective teaching materials and hands-on opportunities. School field trips annually connect more than 12,000,000 students with the natural world.

The John H. Prescott Marine Mammal Rescue Assistance Grant Program provides grants or cooperative agreements to eligible stranding network participants for the recovery and treatment (i.e., rehabilitation) of stranded marine mammals; data collection from living or dead stranded marine mammals; and, facility upgrades, operation costs, and staffing needs directly related to the recovery and treatment of stranded marine mammals and collection of data from living or dead stranded marine mammals. Eligible applicants are currently active, authorized participants, including AZA-accredited zoos and aquariums, or researchers in the National Marine Mammal Stranding Network.

Without the Prescott grant program, NOAA would have to rely on private organizations as it coordinates the response to marine mammals in distress; determines disease, injury and potential cause(s) of death; and supports emergency response for marine mammals during oil spills, outbreaks of diseases, and unusual mortality events. Network partners may not have the funds or the ability to respond to some stranding events, leaving animals at risk for prolonged exposure and likely death. Without funding for this program the critical ability to monitor marine mammal health trends, collect scientific data, and perform analysis would also be diminished. Information about the causes of marine mammal strandings is useful to the public because marine mammals can serve as an indicator of ocean health, giving insight into larger environmental issues that also have implications for human health and welfare.

At the same time that AZA-accredited zoos and aquariums are working with Federal partners to conserve ocean wildlife, they also are providing essential learning opportunities, particularly about science, for schoolchildren in formal and informal settings. Increasing access to formal and informal science education opportunities has never been more important. Studies have shown that American schoolchildren are lagging behind their international peers in certain subjects including science and math.

The NOAA Environmental Literacy Grants Program and Bay Watershed Education and Training Program bring students closer to science by providing them with the opportunity to learn firsthand about our world's marine resources. Through these grant programs, aquariums work closely with Federal, State, and local partners on projects with long-lasting benefits not only for the students but also for their communities. For example, previous projects funded by NOAA Environmental Literacy Grants at AZA aquariums have focused on establishing a regional network of summer camp programs grounded in ocean science, enhancing teen conservation leadership programs, and increasing the effectiveness of informal science educators to promote public understanding of threats to ocean. As schools face increased budgetary pressures, these types of education programs at aquariums will become even more important in ensuring that American schoolchildren receive the necessary foundation in science education that they will need to be competitive in the 21st century global economy.

Finally, AZA-accredited aquariums and zoos work with Federal, State, and local partners to address the marine debris accumulating in the ocean and in rivers, lakes, and streams across the country. Recent studies estimate that at least 8 million metric tons of plastic are dumped into the world's oceans each year. This pollution affects the availability of clean water for humans, harms the species living in these vital bodies of water, and has an impact on the economy and local communities.

The NOAA Marine Debris Program offers several nationwide, competitive funding opportunities for marine debris projects including removal grants, education and outreach grants, and research grants. Important projects recently funded by this program include an initiative by The National Aquarium to work with local partners and advocates in the Masonville Cove region of Baltimore through community clean-ups, leadership and education training. With the amount of marine debris expected

to significantly increase over the next decade, these grants are critical to cleaning up the existing trash as well as educating citizens about how to address this global problem.

AZA-accredited zoos and aquariums are essential partners at the Federal, State, and local levels to improve education for schoolchildren and ensure that current and future generations will be good stewards of the world's oceans. Therefore, I urge you to include \$4 million for the John H. Prescott Marine Mammal Rescue Assistance Grant Program, \$8,000,000 for the NOAA Environmental Literacy Grants Program (including funding for ocean education grants), \$12,000,000 for the Bay Watershed Education and Training Program, and \$8,000,000 for the Marine Debris Program in the fiscal year 2017 Commerce, Justice, Science, and Related Agencies appropriations bill.

Thank you for your consideration of our comments.

[This statement was submitted by Kristin L. Vehrs, Executive Director.]

PREPARED STATEMENT OF ERWIN CHERMERINSKY

I appreciate your accepting my statement in connection with your hearing on President Obama's recently announced Executive action to more effectively enforce existing Federal gun laws.

I am the founding Dean and Distinguished Professor of Law, and Raymond Pryke Professor of First Amendment Law, at UC Irvine School of Law, with a joint appointment in Political Science. Prior to assuming this position in 2008, I was the Alston and Bird Professor of Law and Political Science at Duke University from 2004–2008, and before that was a professor at the University of Southern California Law School from 1983–2004, including as the Sydney M. Irmas Professor of Public Interest Law, Legal Ethics, and Political Science. I am the author of eight books, including leading casebooks and treatises on constitutional law, and over 200 law review articles. I am a graduate of Northwestern University and Harvard Law School.

President Obama's recent Executive actions to more effectively enforce Federal laws regulating guns are clearly constitutional. The new policies announced by President Obama are relatively modest and are entirely focused on enforcing existing statutes. Thus all are within the permissible scope of Executive power without infringing the Second Amendment.

Federal law requires that anyone engaged in the business of dealing firearms must obtain a Federal license and subjects licensed dealers to inspection and basic record-keeping requirements. Congress has established a National Instant Criminal Background Check system and mandated that licensed gun dealers conduct criminal background checks to ensure that would-be gun purchasers are not individuals who are prohibited from purchasing a gun because of a criminal record.

President Obama's Executive action clarifies which gun sellers are "engaged in the business" of dealing firearms, and therefore must obtain Federal licenses and conduct background checks on would-be gun purchasers. A large numbers of firearms are sold by unlicensed dealers at gun shows and over the Internet, frequently without conducting any background checks. The failure of these high-volume sellers to obtain licenses and conduct background checks creates a ready source of firearms for dangerous criminals and other prohibited persons, and fuels the illegal gun trafficking that arms criminals and undermines efforts to reduce gun violence.

President Obama, through his Executive action defining who is in the business of dealing firearms, has closed this dangerous loophole. The hobbyist who occasionally sells guns is not covered, while those who regularly sell guns must comply with Federal law.

Also, President Obama has directed the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) and Federal Bureau of Investigation (FBI) to prosecute individuals who illegally attempt to obtain firearms and also to inform State law enforcement whenever a prohibited person in their State fails a background check. It is common sense that law enforcement has a strong interest in knowing when anyone the law deems too dangerous to buy a gun attempts to do so. This is simply the President taking long overdue action to better enforce Federal laws. To make this work more effectively, the President has ordered that the FBI improve the National Instant Criminal Background check system to make it more efficient.

Similarly, President Obama has asked the ATF to issue a rule requiring background checks for purchasers of certain dangerous firearms and other items who purchase them through a trust, corporation or other legal entity. It also will issue a rule clarifying that gun dealers and licensees who ship firearms have the responsibility to notify law enforcement if their guns are lost or stolen in transit.

All of these actions fall within the President's power to ensure that Federal laws "be faithfully executed." The President has the authority, and the duty, to issue rules and regulations to ensure that the laws are enforced as written and intended. Executive action to ensure enforcement of the law—including issuing clarifying guidance and directing comprehensive enforcement of Federal gun laws—is entirely compatible with the will of Congress and the President's constitutional authority.

Nor is there any plausible argument that the President's actions violate the Second Amendment. All of the Federal laws being enforced by the President's Executive action are unquestionably constitutional. The Supreme Court has been explicit that the Second Amendment is not an absolute right for people to have guns. For example, the Court has said that the Government can regulate who has guns, including prohibiting those with criminal records or a history of serious mental illness from possessing firearms. That is exactly the purpose of the Federal laws being enforced by President Obama's Executive action. Not one Federal court ever has questioned the constitutionality of the Federal laws being enforced by President Obama's Executive order.

Much more needs to be done to prevent gun violence. The President's Executive action is necessarily narrow in scope because it is limited to better enforcing existing Federal laws. It is stunning and disturbing that even these efforts are opposed by gun rights extremists as going too far and falsely condemned by political candidates as President Obama wanting to "take away people's guns."

The repeated gun tragedies must be an impetus to do more to keep guns out of the hands of those who are dangerous. No solution will prevent all or even most gun violence. But drug laws do not keep everyone from getting illegal drugs and even murder laws don't stop all murders. But stricter enforcement of existing laws, which is all that President Obama is doing, hopefully can keep some dangerous people from getting guns and save some lives. That is constitutional and very much worth doing.

PREPARED STATEMENT OF THE CONSORTIUM FOR OCEAN LEADERSHIP

On behalf of the Consortium for Ocean Leadership, I appreciate the opportunity to discuss the fiscal year 2017 Federal science budget for the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautics and Space Administration (NASA). Ocean Leadership represents the leading ocean science, education, and technology institutions, with the mission to shape the future of ocean sciences. Ocean science strengthens our national security, supports a safe and efficient marine transportation system, underpins our economy, and furthers our understanding of complex ocean and coastal ecosystems. We respectfully request the subcommittee provide no less than \$7.96 billion for NSF (including full funding for geosciences); \$2.03 billion for Earth Sciences at NASA; and \$6.0 billion for NOAA. These funding provisions are essential to our future security and economic prosperity.

As Congress addresses Federal investments in the face of constrained budgets, it is important to recognize and maintain support for basic and applied research as a core Federal responsibility. This Federal investment must be a priority given that our Nation's science- and technology-based economy strongly relies on a foundation built upon scientific advances, both within specific disciplines as well as across disciplines. Historic Federal investment in basic research and development has been critically important to advancing our science superiority on the world stage as well as growing our economy, both of which can and should be built upon in the fiscal year 2017 appropriations process. Investing in earth, ocean, and atmospheric sciences—collectively known as the geosciences—are opportunities for the American taxpayer to address global issues while maintaining U.S. primacy in science and technology, as well as benefitting the U.S. economy, national security, and public safety. Geosciences are found across the Federal family, in: NSF's Geoscience Directorate, NOAA's Office of Oceanic and Atmospheric Research, and NASA's Earth Science Division; with each agency partnering, leveraging, and building upon each other's data and information. The ocean science and technology community urges Congress to look to the future of our Nation. With geosciences contributing \$100 bil-

lion to U.S. GDP in 2012¹ with an expected increase to \$127 billion by 2022,² it is clear that these scientific disciplines are valuable to our economy.

NATIONAL SCIENCE FOUNDATION

NSF is the premier Federal agency tasked with supporting basic scientific research, and has been a primary force in providing support for discoveries that have driven our Nation's economy through innovation. In fact, 70 percent of Nobel Laureates since 1950 have received Federal funding from NSF at one time.³ Historically, Congress has appropriated top line numbers for the agency, refraining from directing the course of the agency's research agenda or setting science or infrastructure priorities for the agency. We hope that this policy will continue so the Foundation can continue to make decisions based on the highest quality peer-reviewed science, rather than politics. For example, through this method of Federal science support, NSF's physical science, computer science, and geoscience basic research have resulted in the development of radar systems, satellites, and computer models used by other Federal agencies which have improved weather and ocean forecasting; and ultimately saved countless lives and livelihoods. Given the tremendous impact that natural hazards have on our Nation's economy and public welfare, we believe that investing in the geosciences is critical to advance our knowledge of the planet, while at the same time investing in social and behavioral sciences can improve our ability to understand and communicate key scientific findings and risks to the public and policymakers, who must deal with a rapidly changing planet. Additionally, with NSF providing 64 percent of all funding for basic geoscience research at U.S. universities⁴ and the projected 14 percent geoscience job growth,⁵ it is obvious that this Federal agency plays a key role in both workforce development and industry growth in the United States.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

To meet its many missions and mandates, NOAA requires timely, accurate, and sensitive observations of the planet. Given the pressures of the current fiscal climate, we are confident that NOAA can more efficiently and effectively meet its scientific requirements through partnerships with extramural academic and private sector partners that enhance and strengthen its scientific capability. Such collaborations have led to innovative and cost-effective sensor technologies, streamlined data assimilation and dissemination, improvements in our ability to understand and forecast harmful algal blooms and ocean chemistry, and to a greater understanding of how the ocean and coasts are changing over time. Accessing and partnering with the best minds of the Nation to help manage resources, observe and analyze trends, make forecasts, and address critical concerns requires a greater commitment to external, competitive, and peer-reviewed grant opportunities.

As the ocean absorbs much of the heat and carbon dioxide in the atmosphere, it is crucial to better understand air-sea-ice interactions. These and other ocean and coastal observations provide data and information critical to: forecasting typhoons, hurricanes, flooding, heat waves, droughts, and wildfires; they help calibrate and validate satellite observations; they provide baselines for fisheries management, and long-term data sets on ecosystems, tides and currents, sea level change, and ocean chemistry. Without sustained observations feeding into our prediction capabilities on regional and seasonal scales, we are essentially flying blind in terms of managing resources and protecting overall public health. There are many major natural threats facing our Nation, and significant challenges ahead in understanding, forecasting, and mitigating them, all of which require significant financial resources. Ocean and coastal observations require Federal investment and the return on that investment includes accurate forecasts of weather and extreme events; communities that are prepared for, and can respond to, long-term changes as well as sudden events (e.g., flooding, drought); national, international, State, and local governments having science-based resource management; and weather-climate sensitive industries working with greater certainty in their business models.

¹ Wilson, C. E. (2014), The Status of the Geoscience Workforce. American Geosciences Institute: Alexandria, Virginia, p. 110.

² Wilson, C. E. (2014), The Status of the Geoscience Workforce. American Geosciences Institute: Alexandria, Virginia, p. 110.

³ Cordova, France, 2016. Testimony before U.S. House of Representatives Committee on Science. <https://science.house.gov/sites/republicans.science.house.gov/files/documents/HHRG-114-SY15-WState-FCordova-20160322.PDF>.

⁴ <https://www.nsf.gov/geo/about.jsp>. National Science Foundation.

⁵ 2012–2022, Status of the Geoscience Workforce Report, the American Geosciences Institute, 2014. This handout was compiled by the American Geosciences Institute (AGI), 2014.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The ocean science and technology community urges the subcommittee to fund NASA's Earth Science Division at \$2.03 billion in order to support ocean science and education. NASA satellites provide a view of, and data pertaining to, the planet we live on—ocean and land, atmosphere and deserts, ice sheets and mountains—all important components of a complex and changing system. Beyond interesting information and glorious imagery, NASA earth science activities facilitate and improve the forecasting leading to a national science enterprise with stellar weather, climate and natural hazard predictive capabilities.

GEOSCIENCE EDUCATION

The interdisciplinary nature of oceanography (e.g., physics, biology, chemistry, geology, engineering, computer and information science) requires dedicated education and training opportunities for the next generation of ocean scientists. We believe that the mission agencies mentioned above should continue to have a robust role in education and training as they are best situated to anticipate changing trends and challenges. With 20 percent of American jobs requiring a high level of STEM understanding⁶ (26 million) and 63 percent of high school graduates not meeting the college readiness benchmark for science,⁷ this is a timely investment. We can ill afford to have a 135,000 geoscience worker shortage over the next decade—as the Workforce Research team at the American Geosciences Institute have calculated—workers that are vital for national and international security, energy and weather forecasting industries, as well as natural resource managers, land-use planners and first-responders. Additionally, diversity continues to be a challenge for the scientific community overall; we need to develop a workforce whose composition better resembles the broader population. We greatly appreciate the support this committee has given to STEM education programs at NSF, NOAA, and NASA, and encourage this support to extend into the geoscience directorate at NSF, which aids the development of thousands of early career geoscientists.

SUMMARY

Geosciences impact everyday Americans every day; and across the Nation, across science disciplines, across the Federal family, it is clear that robust and sustained Federal investments in geosciences are key to addressing global and national challenges, underpinning new and growing economies while maintaining and supporting existing ones, and improving technologies that preserve lives and livelihoods, persons and property. As the subcommittee drafts the fiscal year 2017 spending bill, we hope that you reflect on the fact that the bulk of the intellectual capacity regarding the ocean resides within the academic research community. Peer-reviewed extramural research is the most efficient and effective vehicle for providing our policy makers and our commercial partners with the expertise, information, and data necessary to address the emerging challenges facing our Nation. We also hope that you will continue to permit science priorities and decisions to be made by the scientific community, a proven method that has enabled America's thriving, innovation economy for decades.

Mr. Chairman and members of the subcommittee, we greatly appreciate the opportunity to share our recommendations, and I encourage you to continue your long-standing bipartisan support for geoscience funding, including ocean science and technology, in the fiscal year 2017 appropriations process and into the future.

Below is a list of the institutions that are represented by the Consortium for Ocean Leadership:

Alabama
Dauphin Island Sea Lab

Alaska
Alaska Ocean Observing System
Arctic Research Consortium of the
United States (ARCUS)

North Pacific Research Board
University of Alaska Fairbanks

California
Aquarium of the Pacific
Bodega Marine Lab
Esri

⁶The Hidden STEM Economy, Metropolitan Policy Program, Brookings Institute, 2013, <http://www.brookings.edu/~media/research/files/reports/2013/06/10%20stem%20economy%20rothwell/thehiddenstemeconomy610.pdf>.

⁷ACT standardized test. "The Condition of STEM 2014," ACT, <http://www.act.org/stemcondition/14/pdf/National-STEM-Report-2014.pdf>. This handout was compiled by the American Geosciences Institute, 2015.

Hubbs-SeaWorld Research Institute L-3 MariPro, Inc. Liquid Robotics, Inc. Monterey Bay Aquarium Research Institute Moss Landing Marine Laboratory Naval Postgraduate School Romberg Tiburon Center for Environmental Studies Stanford University Teledyne University of California, San Diego (Scripps) University of California, Santa Barbara University of California, Santa Cruz University of Southern California	University of Southern Mississippi <i>New Hampshire</i> University of New Hampshire <i>New Jersey</i> Monmouth University Urban Coast Institute (UCI) Rutgers University <i>New York</i> Columbia University (LDEO) Stony Brook University <i>North Carolina</i> Duke University Marine Laboratory East Carolina University North Carolina State University University of North Carolina at Chapel Hill University of North Carolina at Wilmington <i>Oregon</i> Oregon State University <i>Pennsylvania</i> Pennsylvania State University <i>Rhode Island</i> University of Rhode Island <i>South Carolina</i> South Carolina Sea Grant Consortium University of South Carolina <i>Texas</i> Fugro Harte Research Institute Sonardyne, Inc. Texas A&M University University of Texas at Austin <i>Virginia</i> CARIS, USA CNA College of William and Mary (VIMS) Institute for Global Environmental Strategies (IGES) Old Dominion University U.S. Arctic Research Commission <i>Washington</i> Sea-Bird Scientific University of Washington <i>Washington, DC</i> Marine Technology Society National Ocean Industries Association (NOIA) Southeastern Universities Research Association (SURA) <i>Wisconsin</i> University of Wisconsin-Milwaukee School of Freshwater Sciences
<i>Colorado</i> Cooperative Institute for Research in Environmental Sciences (CIRES) <i>Connecticut</i> University of Connecticut <i>Delaware</i> Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) University of Delaware <i>Florida</i> Earth2Ocean, Inc. Florida Institute of Oceanography Mote Marine Laboratory Nova Southeastern University University of Florida University of Miami University of South Florida <i>Georgia</i> Skidaway Institute of Oceanography of the University of Georgia <i>Hawaii</i> University of Hawaii <i>Illinois</i> John G. Shedd Aquarium <i>Maine</i> Bigelow Laboratory for Ocean Sciences <i>Maryland</i> National Aquarium University of Maryland Center for Environmental Science <i>Massachusetts</i> University of Massachusetts, Dartmouth University of Massachusetts, Lowell Woods Hole Oceanographic Institution <i>Michigan</i> University of Michigan <i>Mississippi</i> University of Mississippi	

PREPARED STATEMENT OF THE CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS

On behalf of the Consortium of Social Science Associations (COSSA), I offer this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, Science and Related Agencies for inclusion in the official committee record. For fiscal year 2017, COSSA urges the subcommittee to appropriate \$8 billion for the National Science Foundation (NSF), \$1.634 billion for the Census Bureau, \$48 million for the National Institute of Justice (NIJ), and \$58 million for the Bureau of Justice Statistics (BJS).

COSSA serves as a united voice for a broad, diverse network of organizations, institutions, communities, and stakeholders who care about a successful and vibrant social science research enterprise. We represent the collective interests of all fields of social and behavioral science research, including but not limited to sociology, anthropology, political science, psychology, economics, statistics, language and linguistics, population studies, law, communications, educational research, criminology and criminal justice research, geography, history, and child development. Social science research studies social contexts across various time and spatial scales, including economic, cultural, demographic, and political contexts. Behavioral research seeks to better understand learning, cognition, emotion, temperament, motivation, and bio-behavioral interactions.

Social and behavioral science research is supported across the Federal Government, including at the National Science Foundation and the Department of Justice. Further, Federal statistics collected by the Census Bureau and other Federal statistical agencies provide important data needed to conduct social science research that informs policy decisions. Taken together, Federal social and behavioral science and statistical data help to provide us with answers to complex, human-centered questions such as:

- How to convince a community in a path of a tornado to heed warnings; or
- What are the best strategies for slowing the HIV/AIDS epidemic, or more recently, the Ebola crisis; or
- How to thwart cybercrime and protect Americans' privacy and security in an increasingly connected world.

In addition, new findings continue to increase the efficiency of our industries, improve the quality of K–12 education, help us understand crime patterns and evaluate prevention strategies, help manage our natural resources, keep our troops safe, help us to be informed as consumers, and allow paralyzed individuals to communicate. Among the countless innovations enabled by Federal support for basic social science research are GPS, telecommunications spectrum auctions, life-saving kidney exchanges, and warning systems to protect lives and property from extreme weather events.

In short, knowledge derived from social and behavioral science research has made our population healthier, our democracy fairer, our nation safer, and our economy stronger. Without these sciences, policy-making on major national issues would not be based on evidence, and billions of dollars would be wasted.

NATIONAL SCIENCE FOUNDATION (\$8 BILLION)

First, I wish to thank the subcommittee for its longstanding support for Federal science agencies. Despite the tough, ongoing fiscal challenges, the subcommittee has remained vigilant in its efforts to ensure adequate funding for basic research, particularly at the National Science Foundation. Thank you.

For fiscal year 2017, COSSA joins the broader scientific community in support of \$8 billion for NSF in fiscal year 2017, an increase of 6.7 percent. This amount would put NSF back on a growth trajectory and would allow the agency to recover some of the purchasing power lost in recent years due to sequestration and caps on discretionary spending.

NSF funds basic scientific discovery, workforce training, and state-of-the-art facilities that keeps the U.S. ahead of our global scientific competitors. NSF supports about a quarter of all federally funded basic scientific research conducted at colleges and universities nationwide. Most notably, NSF serves as the largest single funder of university-based basic social and behavioral science research. While the Social, Behavioral, and Economic Sciences Directorate (SBE) represents only about 3.6 percent of the entire NSF research budget, it supports more than two-thirds (67 percent) of total Federal funding for academic basic research in the social and behavioral sciences.

Social and behavioral science discoveries funded by NSF have improved people's lives by:

- Improving public health.

- Improving the safety of our troops in combat areas through cultural research and understanding.
- Helping us understand how to prepare for and respond to natural and human-made disasters.
- Enhancing teaching and learning in education.
- Reducing violence among our youth.
- Improving the effectiveness of the criminal justice system.
- Generating billions of dollars for the U.S. Treasury with the creation of the telecommunications spectrum auctions.

As you know, the administration requested an increase of only 1.3 percent in discretionary funding for NSF, while proposing that Congress approve one-time mandatory funding in the amount of \$400 million to bring the total NSF budget of \$8 billion for fiscal year 2017. We recognize that the addition of new mandatory funding is not likely this year; however, I hope the proposed funding maneuver will not distract the subcommittee from the real needs of the agency. As Dr. France Córdova, NSF Director, testified before the House earlier this month, nearly \$4 billion worth of projects that are reviewed as “very good” to “excellent” are left on the cutting room floor each year due to inadequate funding. She added that this essentially invites researchers, especially new and young investigators, to leave the field and pursue other STEM careers. Simply put, there are far more exciting, potentially transformative research ideas out there than there is support. Further, as you may recall, the America COMPETES Reauthorization Act of 2010 sought a budget level of \$8.3 billion by fiscal year 2013. While times have changed and sequestration remains a reality, we need not abandon the scientific aspirations Congress set for NSF in the original America COMPETES Act of 2007 and its reauthorization in 2011.

Second, COSSA urges the subcommittee to maintain current practice when appropriating funds for NSF. The scientific community strongly contends that experts at NSF, the merit-review process, and the vast network of scholars around the country who provide technical and content expertise to the NSF leadership are best suited to advise the agency on the most promising science worthy of support. Making a change to current practice—such as by appropriating specific, arbitrary amounts for each NSF directorate—would place scientific disciplines in direct competition with one another for what are already scarce resources, thereby discouraging interdisciplinary science. In addition, it would dismantle the scientific infrastructure that has been assembled over the last several decades by side-stepping the multifaceted, merit-based process that has served the agency so well since its founding. For this reason, we hope the Senate CJS Appropriations Bill will maintain the current practice of appropriating funds to the Research & Related Activities account, leaving NSF with the flexibility to fund the most promising science across all fields.

CENSUS BUREAU (\$1.5 BILLION), U.S. DEPARTMENT OF COMMERCE

COSSA urges the Committee to appropriate \$1.634 billion to the U.S. Census Bureau in fiscal year 2017. Accurate, objective, representative, timely, reliable and accessible data and statistics are necessary ingredients to the conduct of evidence-based analyses of Federal programs.

Fiscal year 2017 is a critical one for the Census Bureau as we near the 2020 Decennial Census. The Census Bureau will be working to complete production of interoperable systems for the reengineered decennial. To do so, the Bureau requires funding to fully evaluate and develop new methods and operations. COSSA urges Congress to appropriate \$778 million for 2020 Census planning, a reasonable request at this critical juncture in the decennial planning cycle that will allow the agency to complete its sweeping design reforms and prepare for the 2018 End-To-End Readiness Test.

One critically important function of the Census Bureau is the American Community Survey, which is the Nation’s only source of comparable (across geography), consistent (across time), timely (updated annually), high quality demographic and socio-economic data for all communities in the United States. The ACS replaced the Census “long form” in 2005 at the behest of Congress. The accuracy of the data collected by the ACS relies on the mandatory nature of the program. If successful, efforts to make the ACS voluntary could translate to a decline in response rates of at least 20 percent and an increase in survey costs by about \$100 million, according to agency estimates. More importantly, reliable socio-economic data would be lost for entire communities, especially those in rural areas. COSSA asks Congress to appropriate \$251.1 million for the American Community Survey (ACS). Funding at this level will allow the Census Bureau to maintain a valid sample size and continue research on new methods and streamlined operations to reduce respondent

burden, improve question wording, and control costs. We further ask that the mandatory status of the ACS be maintained.

NATIONAL INSTITUTE OF JUSTICE (\$48 MILLION) AND BUREAU OF JUSTICE STATISTICS (\$58 MILLION), U.S. DEPARTMENT OF JUSTICE

COSSA urges the subcommittee to appropriate \$48 million for the National Institute of Justice (NIJ) and \$58 million for the Bureau of Justice Statistics (BJS) within the U.S. Department of Justice (DOJ). NIJ serves as the research arm of the Department of Justice, playing a critical role in helping the agency to understand and implement science-based strategies for crime prevention and control. It supports rigorous social science research that can be disseminated to criminal justice professionals to keep communities safe and prevent and reduce crime. The Bureau of Justice Statistics (BJS) is one of 13 principal Federal statistical agencies. BJS produces data that provides statistical evidence needed by researchers and criminal justice policy decision makers. Taken together with NIJ, these investments represent the only dedicated sources of Federal research support committed to enhancing our understanding of crime and the criminal justice system, including around topics like victimization, law enforcement, recidivism and reentry, drugs and crime, and tribal justice.

Social science research supported by the agencies informs policymaking on timely crime and justice issues like:

- Human trafficking;
- Evaluation of anti-gang programs;
- Policing;
- Children exposed to violence;
- Sentencing alternatives to incarceration;
- Elder abuse; and
- Reentry and probation.

Demand by policymakers and criminal justice professionals for rigorous, objective research on policing, mental health, sentencing reform, and other timely topics has increased to unprecedented levels in recent years. However, at the current funding levels, NIJ and BJS simply do not have the capacity to meet the demand. In addition to our request of \$48 million for NIJ for fiscal year 2017, we further urge Congress to approve the administration's request to increase the Research, Evaluation, and Statistics set-aside from 2 to 3 percent, providing additional flexibility to the agency to take on new, timely research questions as they arise.

Thank you for the opportunity to present this testimony on behalf of the social and behavioral science research community. Please do not hesitate to contact me should you require additional information.

[This statement was submitted by Wendy A. Naus, Executive Director.]

CONSORTIUM OF SOCIAL SCIENCE ASSOCIATIONS (COSSA)

American Anthropological Association	Association of American Law Schools
American Association For Public Opinion Research	Law and Society Association
American Economic Association	Linguistic Society of America
American Educational Research Association	Midwest Political Science Association
American Political Science Association	National Communication Association
American Psychological Association	Population Association of America
American Society of Criminology	Society for Personality and Social Psychology
American Sociological Association	Society for Research in Child Development
American Statistical Association	

PREPARED STATEMENT OF THE NATIONAL COURT APPOINTED SPECIAL ADVOCATE ASSOCIATION

Chairman Shelby, Vice Chairwoman Mikulski and Members of the Commerce, Justice, Science, and Related Agencies Subcommittee, thank you for the opportunity to submit remarks on the Department of Justice (DOJ) fiscal year 2017 budget, including our request for full funding of the Court Appointed Special Advocates (CASA) Program through the Office of Juvenile Justice and Delinquency Prevention (OJJDP) at the congressionally authorized level of \$12 million.

CASA/Guardian ad Litem (GAL) advocacy is a well-established model operating in 49 States and the District of Columbia that is strongly associated with improved long-term outcomes for child victims of neglect and abuse, an underserved population whose needs continue to be both deeply profound and devastating. With Congressional support at the fully authorized level, National CASA will enhance and advance specialized training, tools and resources to continue delivering vital one-on-one advocacy that addresses the increasingly complex needs of traumatized children in foster care who have been abused or neglected by their primary caregivers—the very individuals responsible for their safety and care.

The children served by our network are among the most vulnerable in America. Abused and neglected children are more likely to have educational performance and other issues that impact their prospects for future employment and stability within the community. They are also at significantly higher risk of juvenile delinquency, incarceration in adulthood and homelessness as they age out of the system. Without the intervention of a CASA/GAL advocate, the outlook for a child that passes through the foster care system is bleak.

These tragic outcomes have a hefty impact on Federal, State, and local spending, given that at least one-quarter of the DOJ budget is dedicated to funding our Nation's prison system. At the same time, the Centers for Disease Control and Prevention (CDC) estimates the economic and social costs of child abuse and neglect to total \$124 billion nationwide per annum. Independent research has shown that local CASA/GAL programs offer an effective service to child victims of abuse and neglect that improves outcomes, increases the efficiency of our court systems, and reduces the amount of time these victims spend in the foster care system—amounting to tens of millions of dollars in Federal and State taxpayer savings annually.

Last year, CASA/GAL programs leveraged community-based resources to serve 251,000 abused and neglected children in foster care, but more than 400,000 children remain without the powerful intervention of a CASA/GAL advocate. These children are currently “going it alone”—navigating their way through the complex legal system and unfamiliar out of home placements, which could include foster homes or congregate care. Our advocates get to know these child victims outside the courtroom. They are involved in every aspect of the child's life—sometimes as the only caring and consistent adult presence—making it more likely that they will find safe, permanent homes where they can thrive and reach their full potential. These efforts require specialized training, standards, and resources to support a nationwide system of programs that adhere to the highest quality of services and care for the child victim, which National CASA Association provides to its State and local programs.

With DOJ support, the Association sets national standards and provides assessment, accountability and evaluation of these standards across 949 local, State, and tribal programs. DOJ's investment enables National CASA to deliver evidence-based practices, intensive technical assistance, direct program guidance and quality assurance to serve children across the country.

Additionally, given the nature of the CASA/GAL advocate's intensive work with child victims of abuse and neglect, CASA programs employ rigorous screening, training, and supervision nationwide, with congressional support, to ensure consistent quality for victims who directly benefit from having their needs and rights championed in the courtroom and in the community. Comprehensive pre-service, in-service, and issue-focused training curricula—including training in disproportionality, ethnic and racial identity, and working with older youth—ensure a cutting edge approach to victim services centered on the child thriving well into the future as a member of the community.

Unfortunately, child victimization and maltreatment is on the rise, exacting a heavy toll on our Nation's children and on society more broadly. Emerging issues such as the commercial sexual exploitation of children and our Nation's growing opioid epidemic—for which children account for a growing number of victims—require greater specialization for our advocates to deliver the most effective advocacy, and, as the Victims of Child Abuse Act requires, to serve every child victim. Federal support at the fully authorized level is critical to bridging advocacy training and best practice tools to address these increasingly common tragedies and bolster support around the issues of child trafficking and substance abuse specifically.

Even as we commit to enriching the quality of CASA/GAL advocacy under these increasingly complex circumstances, our national network is committed to sustainably increasing growth to serve a targeted and record 270,000 child victims of abuse and neglect, with full funding at \$12 million.

Caring, dedicated, and extensively trained CASA/GAL advocates bring about positive changes in the lives of child victims. Full funding is needed to expand the advocate pipeline, enhance the training, resources, and services provided to and through CASA/GAL programs, and strengthen outcomes for future members of our Nation's

workforce. We can change the trajectory for victims of child abuse and neglect, together, with congressional support.

We urge the subcommittee to fund the Court Appointed Special Advocates Program at \$12 million in fiscal year 2017 to address the overwhelming need for dedicated advocacy on behalf of child victims of abuse and neglect. Thank you for your consideration.

PREPARED STATEMENT OF DEMAND PROGRESS

Dear Chairman Shelby, Ranking Member Mikulski, and members of the subcommittee:

Thank you for the opportunity to submit testimony regarding appropriations for the Department of Justice. I am writing on behalf of Demand Progress, a national grassroots organization with more than 2 million affiliated activists who fight for basic rights and freedoms needed for a modern democracy. Our policy agenda encompasses civil liberties, civil rights, money in politics, and government reform. Today we write regarding transparency and accountability at the Department of Justice.

Our testimony today will address the following components: the FARA Registration Unit, the Office of Legal Counsel, and the Office of Information Policy.

THE FARA REGISTRATION UNIT

Knowing when agents of foreign governments are lobbying the Federal Government to act or forebear action is an important aspect of the policymaking process. Foreign lobbying has been an issue raised by lawmakers and the President. It also has been the topic of news coverage.¹ However, the mechanism by which agents of foreign government report is inadequate to the task and impedes the ability of the Department of Justice to properly enforce the law.²

During his first Presidential campaign, candidate Obama pledged to “create a centralized Internet database of lobbying reports . . . in a searchable, sortable, downloadable format.”³ While persons who lobby on behalf of domestic entities have their information published in this way,⁴ reporting practices for lobbyists for foreign entities have not been similarly modernized. The Department of Justice oversees reporting under the Foreign Agents Registration Act⁵ under its FARA Registration Unit.⁶ The FARA Registration Unit maintains an online database of reports.⁷ It currently permits registrants to submit paper documents and publishes those documents as PDFs. This publication methods obscures the useful information contained in the reports and hinders the Justice Department’s ability to prosecute violators of the law.⁸

Transparency advocates expend significant energy trying to transform these paper files into a searchable, sortable, downloadable database. The Sunlight Foundation, for example, built an online tool called the “Foreign Influence Explorer” that digitized more than 7,000 records.⁹ The staffer who built that tool now works inside GSA’s technology consultancy, 18F, which provides technology assistance to Federal agencies. We also have met with members of the FARA Registration Unit in an effort to encourage and them to improve their database. We met with some success.

¹ See, e.g., “The Misinformation Industry: U.S. lobbying, PR firms give human rights abusers a friendly face—From Azerbaijan to Saudi Arabia, countries with poor human rights records spend millions to polish public image,” Center for Public Integrity (December 2015), available at <http://www.publicintegrity.org/2015/12/17/19051/us-lobbying-pr-firms-give-human-rights-abusers-friendly-face>.

² See, e.g., “Loopholes, Filing Failures, and Lax Enforcement: How the Foreign Agents Registration Act Falls Short,” Project on Government Oversight (December 2014), available at <http://www.pogo.org/our-work/reports/2014/loopholes-filing-failures-lax-enforcement-how-the-foreign-agents-registration-act-falls-short.html>.

³ http://change.gov/agenda/ethics_agenda/.

⁴ https://www.senate.gov/legislative/Public_Disclosure/database_download.htm.

⁵ 22 U.S.C. § 611 et seq.

⁶ <http://www.fara.gov/>.

⁷ <http://www.fara.gov/search.html>.

⁸ See “The Misinformation Industry” above; also see generally “Post Government Employment Restrictions and Foreign Agent Registration,” Government Accountability Office (July 2008), available at www.gao.gov/new.items/d08855.pdf.

⁹ See <http://foreigninfluenceexplorer.com/>. See also “A better way to explore foreign influence,” Sunlight Foundation (May 2014), available at <https://sunlightfoundation.com/blog/2014/05/07/a-better-way-to-explore-foreign-influence/>.

We also successfully recommended that the Justice Department include in its third Open Government Plan the following commitment:

In the process of implementing the Open Government Plan, the FARA Registration Unit, in conjunction with the National Security Division Information Technology Section, has begun to assess the feasibility of generating additional features to the current online portal, which will enable the public to search, sort, and print information from the database more easily. Over the next 2 years, the Department will continue to review the FARA website and electronic filing system, while soliciting reasonable and concrete suggestions and feedback from the public, and will work to make feasible and appropriate modifications to the database. Throughout this process, the Department will specifically investigate collecting and publishing registration information as structured data in a machine-readable format.¹⁰ (emphasis added)

Unfortunately, this process has ground to a halt. Despite repeated attempts, the FARA Registration Unit appears currently uninterested in consulting with the public and disinclined to investigate “collecting and publishing registration information as structured data in a machine-readable format.”

We believe the Department of Justice should require all filings be made in an electronic format where the information can easily flow into a machine-processable digital format. In turn, that information should be released to the public in bulk as structured data so that the data it contains may be searched and sorted. It would empower the use of analytics by DOJ as well.

We request the committee include language in its committee report requiring the FARA Registration Unit to complete its consultations with the public and technologists and publicly report to the committee within 3 months on a plan to publishing registration information as structured data in a machine-readable format. We further request the committee urge the Justice Department to implement publication in a structured-data format within a reasonable timeframe.

THE OFFICE OF LEGAL COUNSEL

Congressional and public access to the final opinions of the Office of Legal Counsel are essential for the proper functioning of Government. They often act serve as a final interpretation of the law for the executive branch; adherence to its advice will cause the Justice Department to forebear prosecution for wrongdoing. Unfortunately, an unknown subset of these opinions has been actively kept secret by the executive branch under claims of executive privilege, deliberative process, and attorney-client privilege. Their concealment undermines the system of checks and balances wrought by the framers. At times, the withholding served to conceal wrongdoing and faulty legal interpretations¹¹ and may include examples of executive overreach.

In an Executive order,¹² President Obama wrote that “agencies should take affirmative steps to make information available to the public” and should “adopt a presumption in favor of disclosure.” His first nominee to head the Office of Legal Counsel, Dawn Johns, joined by many others who served in the Justice Department, called on OLC to “publicly disclose its written legal opinions in a timely manner, absent strong reasons for delay or nondisclosure.”¹³ OLC, in its “best practices” memo, declares that “the Office operates under the presumption that it should make its significant opinions fully and promptly available to the public,” including considering “disclosing documents even if they technically fall within the scope of a FOIA exemption.”¹⁴ We have found, however, that many opinions are not available to the public.¹⁵

We believe the policy of the Justice Department should be to require disclosure of all opinions to congress and the public by default, except public disclosure may be limited in certain circumstances. A determination to withhold publication should be made at the highest levels within the DOJ and be based upon clearly articulated rules. To the extent a document is withheld in full or in substantial part, a detailed unclassified summary of the opinion should be made available to the public in a

¹⁰ Department of Justice Open Government Plan 3.0, p. 8 (May 2014), available at <https://www.justice.gov/open/doj-open-government-plan.pdf>.

¹¹ See, e.g., “Testimony sheds new light on the torture issue,” David Johnson and Scott Shane, the New York Times (April 2008), available at <http://www.nytimes.com/2008/04/03/washington/03intel.html>.

¹² <http://www.whitehouse.gov/the-press-office/freedom-information-act>.

¹³ http://www.acslaw.org/files/Microsoft%20Word%20-%202011_Johnsen__OLC.pdf.

¹⁴ <http://www.justice.gov/olc/pdf/olc-legal-advice-opinions.pdf>.

¹⁵ <https://sunlightfoundation.com/blog/2012/08/15/39-of-office-of-legal-counsel-opinions-kept-from-the-public/>.

timely way that conveys the essence of the opinion. In addition, the OLC should publish a complete list of all final opinions and contemporaneously update the list.

We request the committee include legislative language to require the Justice Department to public report to the committee: (1) the total number of final OLC opinions currently in effect, (2) the standard by which the Justice Department concluded an opinion was “final” and “currently in effect,” (3) the dates of the opinions, (4) the legal issue at stake, and (5) an unclassified summary of each opinion. In addition, the Justice Department should be required to provide the full text of all final opinions still in effect to the subcommittee, the Senate Judiciary Committee, and other committees of jurisdiction.

THE OFFICE OF INFORMATION POLICY

The Office of Information Policy (OIP) in the Department of Justice has responsibility for government-wide oversight of the Freedom of Information Act. As has been recently reported,¹⁶ the Justice Department actively lobbied against FOIA legislation that would have codified the administration’s own language on instantiating a presumption of openness. Related legislation passed the Senate,¹⁷ accompanied by a stern scolding of the Justice Department from government transparency organizations.¹⁸ There are examples of where the Office of Information Policy has been insufficiently zealous in promoting the proper implementation of FOIA.¹⁹ In fact, concerns about OIP in part prompted the creation of a FOIA watchdog in another agency.

The Office of Information Policy has three major areas of responsibility—processing FOIA requests for seven senior management offices within the Justice Department; adjudicating administrative appeals for all units within the Department of Justice; and (government-wide) FOIA policy and compliance. These responsibilities likely create issues with respect to prioritization of tasks and mixed incentives.

I reviewed how OIP allocated its resources to meet these tasks and ran into some difficulty getting clear information.²⁰ However, it appears that FOIA policy and compliance has the fewest resources to carrying out that mission.

We request the committee require OIP to publicly report on the funding it receives and how it allocates it among these three areas of responsibilities. We request a breakdown of the number of staff and contractors that work on issues in each functional unit. In addition, we request that GAO be tasked with reviewing whether OIP is devoting sufficient resources to FOIA policy and compliance, an assessment of whether OIP is properly performing its duties with respect to FOIA policy and compliance, and whether mixed incentives arise by housing these three function units under the same director and possible remedies.

PREPARED STATEMENT OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

The Entomological Society of America (ESA) respectfully submits this statement for the official record in support of funding for the National Science Foundation (NSF). ESA requests a robust fiscal year 2017 appropriation of \$8 billion for NSF, including strong support for the Directorate for Biological Sciences (BIO).

Research in basic biological sciences, including entomology, provides the fundamental discoveries that advance knowledge and facilitate the development of new technologies and strategies for addressing societal challenges related to economic growth, national security, and human health. Basic research on the biology of insects has provided fundamental insights not only within entomology but also across all areas of biology, spanning cell and molecular biology, genomics, physiology, ecol-

¹⁶ See “It Took a FOIA Lawsuit to Uncover How the Obama Administration Killed FOIA Reform,” Jason Leopold, VICE (March 2016), available at <https://news.vice.com/article/it-took-a-foia-lawsuit-to-uncover-how-the-obama-administration-killed-foia-reform>.

¹⁷ See “Freedom of Information Bill Passes the Senate,” Daniel Schuman, Demand Progress (March 2015), available at <https://medium.com/demand-progress/freedom-of-information-bill-passes-the-senate-6d8928963c6b#.t8wmlvan7>.

¹⁸ See Letter to Barrack Obama (March 2016), available at <https://s3.amazonaws.com/new.demandprogress.org/letters/2016-03-16>.

¹⁹ Letter to the President on FOIA reform.pdf (“The Justice Department’s positions are at variance with the underlying intent of the FOIA, good public policy, common sense, and the administration’s oft-stated position on transparency.”)

²⁰ See, e.g., “FOIA is Broken: A Report,” U.S. House of Representatives Committee on Oversight and Government Reform (January 2016), available at <https://oversight.house.gov/wp-content/uploads/2016/01/FINAL-FOIA-Report-January-2016.pdf>.

²¹ See “FOIA Oversight: The Budget Perspective,” Daniel Schuman, Citizens for Responsibility and Ethics In Washington (June 2014), available at <http://www.citizensforethics.org/blog/entry/foia-oversight-the-budget-perspective>.

ogy, behavior, and evolution. In turn, these insights have been applied toward meeting challenges in a wide range of fields, including conservation biology, habitat management, livestock production, and pest control. Moreover, insects have long played an essential role as model organisms for understanding basic biological processes across all organisms, including humans. Insects are often ideal laboratory experimental subjects because they are generally small in size and inexpensive to obtain, they complete development rapidly, and they can be maintained without the special facilities required for vertebrate animals. The familiar “fruit fly,” *Drosophila melanogaster*, for example, has been the subject of NSF-funded research that has profoundly transformed the understanding of human health in countless ways; in 1995, NSF-funded studies elucidating the genetic control of embryo development in this insect was recognized with the Nobel Prize in Medicine or Physiology.

NSF is the only Federal agency that supports basic research across all scientific and engineering disciplines, outside of the medical sciences. Each year, the foundation supports an estimated 300,000 researchers, scientific trainees, teachers, and students, primarily through competitive grants to approximately 2,000 colleges, universities, and other institutions in all 50 States. NSF also plays a critical role in training the next generation of scientists and engineers, ensuring that the United States will remain globally competitive in the future. For example, the NSF Graduate Research Fellowship Program selects and supports science and engineering graduate students demonstrating exceptional potential to succeed in science, technology, engineering, and mathematics (STEM) careers.

Through activities within its BIO Directorate, NSF advances the frontiers of knowledge about complex biological systems at multiple scales, from molecules and cells to organisms and ecosystems. In addition, the directorate contributes to the support of essential research resources, including biological collections and field stations. NSF BIO is also the Nation’s primary funder of fundamental research on biodiversity, ecology, and environmental biology.

One project funded by NSF that illustrates the broad reach of basic biology research is focused on how diverse insects, including flies and butterflies, use their specialized mouthparts for imbibing fluids.¹ This study examines common and divergent elements allowing these insects to ingest fluids, including wettability properties, fluid uptake mechanisms, and the influence of the form of the fluid, as a pool or a film, on dynamics of fluid acquisition. Results of this project can elucidate how insects select and utilize diets ranging from floral nectar to vertebrate blood and how fluid use leads to species diversification in groups with tremendous impact on human life, including pollinators and blood-feeding disease vectors. At the same time, this work is yielding bio-inspired principles of fluid uptake and transport that can be applied to developing flexible microfluidic probes and other new engineering devices for use in diagnostic medicine and other purposes.

Another group of investigators is funded by NSF to study the reproductive biology of the red imported fire ant, an invasive species that infests over a dozen southern States and costs this region more than \$5 billion dollars annually in health costs, crop and livestock losses, and control efforts.² These investigators are examining how the colonies of this species, particularly those with multiple queens, grow so rapidly, focusing on how neuronal signaling molecules respond to the nutritional status of the queen and regulate the network of genes involved in ovary development and egg maturation. Information obtained through these studies is both expanding basic knowledge of task allocation in social insects, which collectively comprise approximately 75 percent of all insect biomass on the planet, and provide new insights into stemming invasions and restoring the health of land lost to fire ant infestation.

Yet another example of how NSF’s support for basic research on insects is important for the Nation’s economic, social, and environmental well-being is the collaborative project between two universities on the classification and evolutionary history of a group of beetles known as the pygmy borers.³ These tiny beetles comprise one of the largest groups of so-called bark beetles, which collectively infest and kill millions of acres of trees every year by boring into bark or other tree parts; some species compound the damage they inflict by infecting their tree hosts with pathogenic

¹ Adler, P. et al. Mechanisms of Fluid Feeding in Insects, from Nanoscale to Organism, Award Abstract #1354956.

² Pietrantonio, P. and C. Tamborindeguy, Neuropeptide Receptors and Identification of Genes in Signaling Networks Involved in Reproduction and Nutrition in the Red Imported Fire Ants. Award Abstract #1257837.

³ Collaborative Research: Cognato, A.; Hulcr, J. The Pygmy Borers (Col., Scolytinae: Cryphalini): revision of genera, evolution of the genome, and modernization of insect systematics. Award Abstract #1256663, Award Abstract #1256968.

fungi. One pygmy borer species, called the coffee berry borer, damages the coffee berries that produce coffee “beans”; this tiny insect, less than 2 mm (8/100ths of an inch) long, is capable of destroying an entire coffee harvest in some regions. These investigators are using cutting edge methods, including next-generation genome sequencing, along with automated matrix-based identification techniques to reconstruct the evolutionary history of and relationships among the pygmy borers, determine whether widespread species in the group are actually many different cryptic species, and to understand the effects of bacterial parasites on the genomes of species in the group. A product of this research will be new, powerful but cost-effective ways to differentiate among species, which can be exceedingly difficult to identify, that will enable quarantine officers to identify and prevent this species from expanding its range into new areas.

Given NSF’s critical role in supporting fundamental research and education across science and engineering disciplines, ESA supports an overall fiscal year 2017 NSF budget of \$8 billion. ESA requests robust support for the NSF BIO Directorate, which funds important research studies and biological collections, enabling discoveries in the entomological sciences to contribute to understanding environmental and evolutionary biology, physiological and developmental systems, and molecular and cellular mechanisms.

ESA, headquartered in Annapolis, Maryland, is the largest organization in the world serving the professional and scientific needs of entomologists and individuals in related disciplines. Founded in 1889, ESA has nearly 7,000 members affiliated with educational institutions, health agencies, private industry, and government. Members are researchers, teachers, extension service personnel, administrators, marketing representatives, research technicians, consultants, students, pest management professionals, and hobbyists.

Thank you for the opportunity to offer the Entomological Society of America’s support for NSF. For more information about the Entomological Society of America, please see <http://www.entsoc.org/>.

PREPARED STATEMENT OF THE FEDERATION OF AMERICAN SOCIETIES FOR
EXPERIMENTAL BIOLOGY (FASEB)

NATIONAL SCIENCE FOUNDATION

The Federation of American Societies for Experimental Biology (FASEB) is composed of 30 societies with 125,000 members, making it the largest coalition of biomedical research associations in the United States. FASEB enhances the ability of scientists and engineers to improve health, well-being, and productivity through research and is recognized as the policy voice of biological and biomedical researchers. We thank the subcommittee the opportunity to offer our support and recommendations for the National Science Foundation (NSF).

NSF is the only Federal agency supporting discovery-oriented research in all fields of science and engineering and is the major source of funding for mathematics, computer science, and social sciences research. NSF’s mission is “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense . . .” More than 200 Nobel Laureates have received NSF support throughout their careers. The agency’s fellowship programs educate and train thousands of graduate students pursuing advanced degrees in science, technology, engineering, and mathematics, ensuring a robust and competitive workforce. Funding is distributed annually through merit-based reviews, to 200,000 scientists, engineers, educators, and pre- and post-doctoral students across all 50 States. NSF supports approximately 24 percent of all federally supported basic research and awards an average of 11,500 new competitive awards per year.

To sustain the Nation’s leadership in science, the research community relies on NSF to provide access to major research facilities, mid-scale instrumentation, advanced computational and data resources, and cyberinfrastructure. Large-scale NSF facilities fund equipment that can propel entire fields of research forward, maximizing our investment and promoting the use of shared resources. NSF is also responsible for helping to address a new set of challenges in managing, storing, and providing access to the explosion of data currently being produced by researchers.

Research supported by NSF has led to significant advances in nanotechnology, leading to the creation of new devices and materials with remarkably useful and versatile properties. Today, many private sector companies are pursuing the development of nanoscale products for commercial uses. NSF has also funded research that has created products used in everyday life such as bar codes and computer-aided design (CAD) software. In addition, research funded by NSF helped develop Doppler

radar enabling meteorologists to forecast the location and severity of storms with greater accuracy.

Recent highlights from NSF-funded research that address important problems related to the conditions of humans, animals, the environment include:

- CRISPR-Cas9 and Gene Editing*: Basic research into the mechanisms of bacterial immunity has opened a new frontier in biotechnology. The CRISPR-Cas9 system, pioneered by researchers at institutions including the University of California, Berkeley, allows biologists to make precise, targeted changes to individual genes in the genomes of a myriad of organisms and cell-types. This not only gives researchers an unprecedented ability to study biological processes at the molecular level, but opens up a new universe of potential therapeutics and biotechnological applications.¹
- Studying Amphibians to Understand the Microbiome and Disease*: Researchers at the University of California-Santa Barbara have demonstrated that a fungal pathogen responsible for massive declines in amphibian species changes the microbiome that normally resides on the animals' skin. Using next-generation DNA sequencing to document shifts in skin bacteria of frog communities during pathogen outbreaks, the researchers discovered varying patterns of disease dynamics that may be related to tolerance or vulnerability to the pathogen. The results are important for developing responses to counter the mass extinction of amphibians worldwide, and may also have implications for studies of human health.²
- Using Genetics to Address Colony Collapse Disorder*: Important commercial crops in the United States and throughout the world are pollinated by honey bees. However, over the last decade, there has been a drastic decline in bee populations, threatening food security and billions of dollars of agricultural production. By studying the African relatives of domestically raised bees, researchers at Pennsylvania State University are beginning to understand genetic and environmental factors that might allow bees to resist the agents that threaten them. This work may lead to new management and breeding strategies that will save this crucial pollinator.³
- Understanding Variation in Tolerance to Oxygen Deprivation*: Oxygen deprivation is an important cause of disease and injury in humans, animals, and aquatic ecosystems. Some animals, such as painted turtles, are ideal models for understanding the limits of oxygen deprivation because they can naturally tolerate the condition. Comparative physiologists at Saint Louis University are using next-generation transcriptomic approaches to identify the genes underlying the turtle's ability to survive without oxygen. Their aim is to uncover new targets for interventions that could reduce or eliminate tissue injury in more vulnerable species.⁴
- Mathematical Modeling of Blood Flow to Understand Glaucoma*: Researchers at Indiana University are developing a mathematical model of ocular blood flow in order to study glaucoma, a disease of the optic nerve and a leading cause of blindness. By using new, quantitative approaches, this work has the potential to improve the interpretation of clinical eye measurements, not only for the diagnosis and treatment of glaucoma, but also for other vascular diseases that present systems in the eye such as diabetes, hypertension, and atherosclerosis.⁵
- Blocking the Transmission of Malaria*: Malaria, a parasitic infection transmitted by mosquitoes, is a scourge that affects millions of people globally each year. Biochemists at the University of Oklahoma have identified a protein in the mosquito digestive system that is critical for the transmission of the malarial parasite. With this insight, researchers hope to harness the activity of this protein in order to develop compounds that might block parasite uptake by mosquitoes and prevent further spread of the disease.⁶
- Real-Time Imaging of Organs and Tissues*: Biomedical engineers at Washington University in St. Louis have developed a novel approach to biomedical imaging. This technique, which uses lasers to create miniscule changes in temperature in the object to be imaged, does not require the use of chemical agents, and thus can be used to visualize living material in its natural environment. Such new bioimaging technology will give researchers an unprecedented ability to vis-

¹ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=134286&org=BIO.

² http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=133263&org=NSF.

³ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=135470&org=BIO.

⁴ https://www.nsf.gov/awardsearch/showAward?AWD_ID=1253939&HistoricalAwards=false.

⁵ http://www.nsf.gov/awardsearch/showAward?AWD_ID=1224195&HistoricalAwards=false.

⁶ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=135733&org=BIO.

ualize and understand myriad biological processes, and ultimately may give clinicians a powerful new diagnostic tool.⁷

FACILITATING NEW DISCOVERIES

New research will be required to solve vexing problems facing the United States and the world. The breadth and diversity of NSF's mission makes the Foundation uniquely suited to pioneer bold, new scientific directions. Indeed, many of the most innovative ideas and interesting frontiers are interdisciplinary in nature, drawing upon concepts and expertise from several different scientific traditions. In this spirit, the NSF has become adept at leveraging its expertise both within and across units at the agency, and will continue to pursue new multi-directorate initiatives, such as the Innovations at the Nexus of Food, Water, and Energy investment.⁸

Despite this unprecedented level of scientific opportunity, the budget of NSF has increased only marginally over the last several years. This, coupled with the rising cost of research, has eroded the ability of the NSF to be a cornerstone of the America's scientific enterprise and restricted the Foundation's ability to train the next generation of scientists and engineers. What is required is a renewed commitment to NSF that puts the agency on a path of sustained, steady budget increases such that science may flourish and the Nation may continue to benefit from the landmark discoveries and innovations enabled by NSF funding.

Providing NSF with a budget of \$7.96 billion (\$500 million above fiscal year 2016 levels) would allow the agency to fund approximately 500 additional research grants at colleges, universities, and other research centers across the Nation. Funding at this level is also consistent with a vision of predictable, sustained growth for NSF that has been proposed in past reauthorizations, such as the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (COMPETES) Act of 2010.

FASEB recommends a minimum of \$7.96 billion for NSF in fiscal year 2017, as an important first step in ensuring a sustainable, competitive basic research enterprise.

PREPARED STATEMENT OF FRIENDS OF NOAA

DEAR MEMBERS OF CONGRESS:

As supporters, stakeholders, employees, and partners of the National Oceanic and Atmospheric Administration (NOAA), Friends of NOAA strongly supports funding the agency at \$6.05 billion in fiscal year 2017.

NOAA is essential to America's economy, security, environment, and quality of life. More than half of all Americans live along our coasts, over 2.8 million jobs are in ocean-dependent industries, and the insured value of coastal property now exceeds \$10 trillion. Moreover, weather and climate sensitive industries account for an overwhelming majority of the U.S. GDP. Americans need NOAA's fully integrated range of oceanic and atmospheric data, products, and services now more than ever before. Investing in NOAA in a balanced manner not only strengthens our Nation's capacity for science-based innovation but also provides superior economic value by enabling businesses and government to better manage risk and optimize decisionmaking.

Investments in NOAA translate into an extensive list of benefits, from reduced natural hazard risks to increased national security. The following items are only some of the many contributions that NOAA makes to our Nation and its citizens.

Timely and Accurate National Weather Service Forecasts and Warnings

Weather, water, and climate events cause an average of approximately 650 deaths and \$15 billion in damage per year. They are also responsible for around 90 percent of all presidentially-declared disasters. Additionally, about one-third of the U.S. economy—\$3 trillion—is weather and climate sensitive, which means that millions of people, businesses, and communities rely on National Weather Service (NWS) products every day. Sufficient funding for NWS will support the program's "Weather Ready Nation" campaign and the National Water Center, which help to build community resilience in the face of growing vulnerability to extreme weather events by increasing advanced warning times, improving how forecasts are communicated, and providing emergency managers with decision support services.

More specifically, strong support for NOAA will allow the agency to develop a new Integrated Water Prediction (IWP) initiative, resulting in a new generation of flood-

⁷ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=135473&org=BIO.

⁸ <http://www.nsf.gov/pubs/2016/nsf16524/nsf16524.htm?org=NSF>.

ing and drought forecasts. Increased funding is also required for NOAA to maintain its NEXRAD Weather Radars and Automated Surface Observing Systems, which are essential for critical tornado and severe weather warnings and in avoiding critical data gaps.

Environmental Management to Reduce Risk

NOAA provides the essential data and information that people need to understand and prepare for climate variability and change. Long-term environmental information is essential to reducing the natural hazard risks and limiting liabilities for agriculture, marine and freshwater resources, maritime trade and commerce, forest management, coastal resilience, and wildfire control. Drought forecasts alone are worth up to \$8 billion per year to the farming, transportation, tourism, and energy sectors, and knowledge about a changing ocean can help protect coastal properties worth \$170 billion.

Strong investments in NOAA are critical to support public and private stakeholders in carrying out careful environmental monitoring and analysis that can save time, money, and lives. Furthermore, increased funding is essential for updating NOAA's computing capacity and, in addition to improved baseline atmospheric and ocean data collection, will also allow the agency to expand forecast outlooks to three to 4 weeks, which do not currently exist.

Maintenance and Sustainability of Healthy Oceans and Coasts

NOAA's work in understanding our oceans and coasts is absolutely essential to our economic, ecological and public health. A healthy ocean has drawn approximately half of all Americans to live on the coasts—and coastal counties alone contribute nearly \$6.6 trillion annually to the GDP. Sustained ocean research and observations support initiatives such as managing harmful algal blooms, exploring how ocean acidification affects our communities and ecosystems, and responding to coastal emergencies like the *Deepwater Horizon* oil spill, NOAA helps to strengthen local ocean-dependent economies, aids place-based stewardship, and sustainably manages coastal natural resources. NOAA requires strong Federal funding to continue to ensure the existence of clean beaches, healthy oceans, and sustainable coastal communities.

With increased support, NOAA can further our understanding of ocean acidification and its impacts on marine resources, expand grants for critical research on ecological, economic, and social coastal issues, and help coastal planners integrate ecosystem-based solutions into hazard mitigation and coastal resilience strategies.

Informed and Productive Fishery Management

Fishery stock assessments and data collection are essential for providing managers the information they need to sustain fishing opportunities while preventing overfishing. As a result of the agency's fishery management, NOAA has rebuilt 37 stocks since 2000, resulting in overfishing numbers dropping to an all-time low in 2014. Rebuilding all overfished stocks and harvesting them at their maximum sustainable yields will generate \$31 billion in sales impacts and support 500,000 jobs.

Investment in NOAA is vital to the implementation of science-based catch limits that maintain productive fisheries, secure fishing opportunities, and support the economic vitality of coastal communities. Strong funding will allow the agency to combat global and domestic illegal, unreported, unregulated fishing, monitor endangered marine species, and provide crucial disaster assistance to fisheries.

Innovative and Cutting-edge Geostationary and Polar Satellite Systems

All levels of government, public, industry, and military rely on NOAA satellites for weather forecasting, storm tracking, and long-term Earth observations that protect lives and infrastructure. 39,000 people worldwide have been saved by NOAA's Search and Rescue Satellite-Aided Tracking System alone. Stable funding is essential for data acquisition efficiency, for minimizing total cost to taxpayers, and for ensuring that launch dates are not delayed, which would leave millions of Americans without detailed severe weather information they rely on every day.

Strong support for the agency will allow NOAA to maintain current launch schedules of both GOES-R and JPSS, as well as ensuring that following satellites in the series are developed on time. Increased funding also translates into the continuation of exploring the potential of commercial data use in NOAA's modeling and forecasting, completing the development of COSMIC-2A ground stations and enhancing NOAA's capabilities in space weather forecasting and imaging as DSCOVR reaches the end of its projected mission life in 2022.

World Class Research and Development

NOAA research has led to new technologies and scientific advances that have increased our understanding of the planet and improved our lives. NOAA research also engages students—the next generation’s scientists—from around the country, helping to expand the agency’s capacity and prepare for the future. Continuing this cutting edge work, however, will require the comprehensive modernization of all of NOAA’s observation and monitoring operational systems, including its oceanographic fleet of vessels, fleet of aircraft, suite of in-situ ocean and coastal sensors, and remote capabilities.

Without adequate investment, for example, the NOAA fleet will decline by 50 percent, with half of its vessels set to retire in the next 10–12 years. In addition, strong funding for NOAA will allow the agency to more efficiently transition the most promising research into operations, applications, and commercialization, as well as expand regional research to help manage climate risks and support climate assessment efforts.

FoNOAA urges Congress to support a balanced budget for NOAA. From satellites and weather operations to fisheries and coastal management, every facet of NOAA serves a purpose essential to the Nation. Therefore, we strongly encourage you to recognize the unique role that NOAA plays in supporting our economy, national security, and environmental resiliency by funding the agency at \$6.05 billion in fiscal year 2017.

If Friends of NOAA can be of service or provide additional information, please contact info@friendsofnoaa.org.

Thank you for your consideration of this request.

Sincerely,

AccuWeather, Inc.
Alliance for Earth Observations
American Association of Port Authorities
American Geophysical Union
American Geosciences Institute
American Rivers
American Weather And Climate Industry Association
American Weather And Climate Industry Association
Association for the Sciences of Limnology and Oceanography
Association of Public and Land-grant Universities
Association of Zoos & Aquariums
Association of National Estuary Programs
Ball Aerospace & Technologies Corp.
Battelle
Campaign for Environmental Literacy
Campbell Marketing Group
City of Port Washington, Wisconsin
Coastal States Organization
Colorado Ocean Coalition
Columbia University
Consortium for Ocean Leadership
Department of Fisheries Biology, Humboldt State University
Federal Science Partners
Fugro Pelagos, Inc.
Georgia Conservancy
Global Science & Technology, Inc.
Guanaja Mangrove Restoration
Hubbs-Seaworld Research Institute
I.M. Systems Group, Inc.
Institute for Exploration
Integrated Systems Solutions, Inc.
International Fund for Animal Welfare
International SeaKeepers Society
IOOS Association
Joint Ocean Commission Initiative

Lamont-Doherty Earth Observatory,
Columbia University Earth Institute
Marine Conservation Institute
Marine Fish Conservation Network
Mariners’ Museum
Meridian Institute
Michigan Technological University
National Aquarium
National Association of Marine Laboratories
National Council of Industrial Meteorologists
National Estuarine Research Reserve Association
National Federation of Regional Associations for Coastal and Ocean Observing
National Marine Sanctuary Foundation
National Weather Service Employees Organization
Natural Resources Defense Council
Navocean, Inc.
Ocean Conservancy
Ocean Conservation Research
Ocean Exploration Trust
Ogeechee Riverkeeper
Oregon State University
Quantum Spatial
Raytheon
Reinsurance Association of America
Restore America’s Estuaries
School of Ocean and Earth Science and Technology, University of Hawaii
Scripps Institution of Oceanography
Sea Grant Association
Sea Stewards
SeaWeb
Shipbuilders Council of America
The JASON Project
The Maritime Alliance
The Ocean Foundation

The Ocean Project	University of Maryland
The University of Oklahoma	University of Miami, Rosenstiel School of
The Weather Coalition	Marine and Atmospheric Science
UC Davis Bodega Marine Laboratory	University of South Florida
UCLA Institute of the Environment and	University of Washington
Sustainability	Vaisala, Inc.
United Fisherman's Marketing	WeatherBank, Incorporated
Association, Inc.	West Marine
University Corporation for Atmospheric	Wisconsin Maritime Museum
Research	Woods Hole Oceanographic Institution
University of Colorado, Boulder	World Wildlife Fund

PREPARED STATEMENT OF THE GENETICS SOCIETY OF AMERICA

Thank you for the opportunity for the Genetics Society of America (GSA) to provide our perspective on the fiscal year 2017 appropriations for the National Science Foundation (NSF). GSA recommends a minimum of \$7.96 billion for NSF to support fundamental research across the Nation.

GSA is a professional scientific society with more than 5,500 members from all 50 States working to deepen our understanding of the living world by advancing the field of genetics, from the molecular to the population level. While NSF provides 24 percent of all Federal research for sciences, its contributions comprise 68 percent of the total Federal investment in non-biomedical biology—including genetics research.¹ Members of our community rely on support from NSF to answer fundamental research questions. This is especially true for our members whose line of scientific inquiry does not have a foreseeable health application, but fits directly into NSF's mission to "promote the progress of science."

Fundamental research supported by the NSF has led to ground-breaking discoveries in our field and beyond. For example, research into the mechanisms of bacterial immunity funded by NSF led to the development of CRISPR/Cas9, the breakthrough technology which has accelerated the potential for gene editing.² As a result, researchers now have an unprecedented ability to study biological processes at the molecular level in a growing array of experimental systems and a new universe for biotechnological applications is now open for exploration. In another example, results from genetics research on the decline of bee colonies—which are a crucial pollinator for U.S. crops—will be implemented to create new management and breeding strategies to ensure that bee populations are maintained.³ This research investment could prevent threats to food security and billions of dollars in losses in agricultural production.

Sustainable funding for the National Science Foundation is critical to ensure that these types of investigator-initiated projects, which have implications for society at large, continue to be supported. If the full funding request of \$7.96 billion is appropriated, the agency will be able to increase its success rate for investigator-initiated grants to 23 percent, corresponding to 800 new projects, any number of which could lead to the next great scientific innovation.

We also wish to emphasize the importance of sustainable support for research infrastructure. Biological databases, stock centers, and other shared research resources are essential for maintaining consistency across different research laboratories and are vital to scientists nationwide. For example, genomic databases speed innovation by providing accelerated access to well-curated data that can be used to validate new techniques. They also serve as searchable data repositories that allow scientists to connect their research findings and identify collaborators rapidly. Further, research databases function as a central place for data sharing, improving research transparency, and positively impacting research reproducibility. We believe that sustained public support for these community resources is essential and allows them to operate on an open access model, thus assuring that all researchers have the tools they need for discovery.

A significant fraction of the GSA membership are trainees—undergraduates, graduate students and postdoctoral scholars—who are concerned about the future of research funding and its implications for their careers. In 2015, 350,000 senior researchers, postdocs, graduate, and undergraduate students were funded directly through the NSF.¹ The requested increase in the agency's budget would allow

¹ NSF Fiscal Year 2015 Budget Request to Congress. <http://www.nsf.gov/about/budget/fy2017>.

² http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=134286&org=BIO.

³ http://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=131953.

20,600 more scientists to be positively impacted by agency funds.¹ Such an increase would ensure that graduate students and postdocs remain in research careers, making strides in science and technology that will allow the U.S. to remain a world leader in STEM advances.

Finally, we would like to emphasize our support for the NSF's existing practice of setting priorities for research investments through engagement with the scientific community including the National Science Board, National Academy of Sciences, and other advisory bodies. The Genetics Society of America supports the merit review process of the NSF to select the most promising research and to enable the foundation to have flexibility to use its appropriation to pursue promising opportunities across the breadth of its mission.

We appreciate the opportunity to provide input into your deliberations about NSF appropriations. We are happy to provide any additional information about the impact of NSF funding on our community and the advancement of genetics research. Please contact GSA's Executive Director, Adam P. Fagen, PhD (AFagen@genetics-gsa.org) or GSA's Policy and Communications Manager, Chloe N. Poston, PhD (CPoston@genetics-gsa.org) with any questions.

ABOUT GSA: Founded in 1931, the Genetics Society of America (GSA) is a professional scientific society with more than 5,500 members worldwide working to deepen our understanding of the living world by advancing the field of genetics, from the molecular to the population level. GSA promotes research and fosters communication through a number of GSA-sponsored conferences including regular meetings that focus on particular model organisms. GSA publishes two peer-edited scholarly journals: *GENETICS*, which has published high quality original research across the breadth of the field since 1916, and *G3: Genes|Genomes|Genetics*, an open-access journal launched in 2011 to disseminate high quality foundational research in genetics and genomics. The Society also has a deep commitment to education and fostering the next generation of scholars in the field—as well as helping to enhance public understanding of genetics and model organism research. For more information about GSA, please visit www.genetics-gsa.org. Also follow GSA on Facebook at [facebook.com/GeneticsGSA](https://www.facebook.com/GeneticsGSA) and on Twitter @GeneticsGSA.

PREPARED STATEMENT OF THE GEOLOGICAL SOCIETY OF AMERICA

SUMMARY

The Geological Society of America (GSA) supports strong and sustained investments in geoscience research and education at the National Science Foundation (NSF) and National Aeronautics and Space Administration (NASA). We encourage Congress to appropriate \$8.0 billion and fully support geoscience research at NSF. We support the increase proposed for Earth science research at NASA in the request but are concerned about proposed cuts to planetary science in the request. Investment in NSF and NASA is necessary for America's future economic and science and technology leadership, both through discoveries that are made and the talent developed through their programs. Earth and space science at these two agencies play a vital role in understanding and documenting mineral and energy resources that underpin economic growth; researching and monitoring potential natural hazards that threaten U.S. and international security; and determining and assessing water quality and availability.

The Geological Society of America, founded in 1888, is a scientific society with over 26,000 members from academia, government, and industry in all 50 States and more than 100 countries. Through its meetings, publications, and programs, GSA enhances the professional growth of its members and promotes the geosciences in the service of humankind.

NATIONAL SCIENCE FOUNDATION

The Geological Society of America (GSA) urges Congress to provide the National Science Foundation (NSF) \$8.0 billion in fiscal year 2017. Sustained increases beyond research inflation are necessary to regain America's economic and science and technology leadership. Facing a budget that does not keep pace with inflated costs of research over the past few years, NSF has reduced the number of awards funded each year. This decline is particularly burdensome for early career scientists. Limiting funding opportunities for early career researchers today places our position as a science and technology leader of tomorrow in jeopardy.

Geoscience research is a critical component of the overall science and technology enterprise and should be funded without restriction. NSF's Directorate for Geosciences is the largest Federal supporter of basic geoscience research at universities.

NSF's programs in geoscience research and graduate and undergraduate student support contribute significantly to the education and training of the geoscience workforce. A recent report by the American Geosciences Institute, *Status of Recent Geoscience Graduates 2015*, illustrates the diversity of careers supported by geoscience research. For example, the report found that 67 percent of master's graduates found jobs in the oil and gas industry, while environmental services, which includes fields such as environmental consulting and remediation of land assets such as water and soil, hired the highest percentage of bachelor's graduates. Other industries hiring geoscientists include manufacturing, trade, construction, information technology services, and agriculture.

Increased investments in NSF's geoscience portfolio are necessary to address such issues as natural hazards, energy, water resources, and education; geoscience is a key contributor to groundbreaking research across disciplines at NSF. Specific needs include:

- The recent National Research Council report *Sea Change: 2015–2025 Decadal Survey of Ocean Sciences* highlights research questions to guide NSF investment. Tasked “to identify areas of strategic investment with the highest potential payoff,” the report identifies questions that will guide our understanding of risks to our planet including: What are the rates, mechanisms, impacts, and geographic variability of sea level change? How different will marine food webs be at mid-century? In the next 100 years? How can risk be better characterized and the ability to forecast geohazards like megaeearthquakes, tsunamis, undersea landslides, and volcanic eruptions be improved?
- Natural hazards are a major cause of fatalities and economic losses. Landslides alone, which occur in every State, cause more than \$3 billion in damage each year. NSF research improves our understanding of these geologic hazards, which allows for effective planning and mitigation. We urge Congress to support NSF investments in fundamental Earth science research and facilities that underpin innovations in natural hazards monitoring and warning systems through Risk and Resilience initiative such as “Prediction of and Resilience Against Extreme Events.”
- Recent studies have shown that rare earth elements are essential to the production, sustainment, and operation of U.S. military equipment. Reliable access to the necessary material is a *bedrock requirement* for the Department of Defense. In addition, many emerging energy technologies—such as wind turbines and solar cells—depend upon rare earth elements and critical minerals that currently lack diversified sources of supply. The Division of Earth Sciences supports research on the structure, composition, and evolution of the Earth and the processes that govern the formation and behavior of the Earth's materials. This research contributes to a better understanding of the natural distribution of mineral and energy resources for future exploration.
- The devastating droughts in the western United States highlight our dependence on water. NSF's research addresses major gaps in our understanding of water availability, quality, and dynamics, and the impact of both a changing and variable climate, and human activity, on the water system. The initiative “Innovations at the Nexus of Food, Energy and Water Systems” highlights the important linkages and research needs between these systems.
- The Division of Atmospheric and Geospace Sciences provides critical infrastructure and research for understanding our planet, such as weather and precipitation variability on multiple time scales and atmospheric and space weather hazards.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

GSA supports increased investment in Earth science and planetary exploration research at National Aeronautics and Space Administration (NASA). We support the increases proposed for Earth science research in the fiscal year 2017 request. The National Academies' *Earth Science Decadal Survey* begins with an explanation of the importance of this research:

“Understanding the complex, changing planet on which we live, how it supports life, and how human activities affect its ability to do so in the future is one of the greatest intellectual challenges facing humanity. It is also one of the most important challenges for society as it seeks to achieve prosperity, health, and sustainability.”

The data and observations from Earth observing missions and research are a tremendously important resource for natural resource exploration and land use planning, as well as assessing water resources natural disaster impacts, and global agri-

culture production. GSA supports interagency efforts to ensure the future viability of Landsat satellites, including Landsat 9 and 10, as well as funding to increase the capabilities and uses of multi-spacecraft constellations of small scientific satellites.

Two missions—Pre-Aerosol, Clouds, and Ocean Ecosystem (PACE) and Surface Water and Ocean Topography (SWOT)—will provide valuable information to decision makers on water. PACE will help monitor oil spills and detect algal blooms, which have a significant negative impact on human health, ocean ecology, and fisheries. The global survey of Earth's surface water by SWOT could provide key data for flood and drought management; improve risk assessments by the insurance industry; harness energy; and optimize both military and commercial marine operations.

GSA is concerned, however, about proposed cuts to planetary science in the fiscal year 2017 request; we appreciate past congressional support for this area and urge you to continue to increase this important area to support priority areas identified in the *Planetary Science Decadal Survey*.

Planetary research is directly linked to Earth science research and cuts in either program will hinder the other. To support missions to better understand the history and workings of the entire solar system, planetary scientists engage in both terrestrial field studies and Earth observation to examine geologic features and processes that are common on other planets, such as impact structures, volcanic constructs, tectonic structures, and glacial and fluvial deposits and landforms. In addition, geochemical planetary research studies include investigations of extraterrestrial materials now on Earth, including lunar samples, meteorites, cosmic dust particles, and, most recently, particles returned from comets and asteroids.

Exploration of other planets in the solar system requires major national and international initiatives, significant funding levels, and long timelines for mission planning and collaborative research. For scientists, the funding cycle is much shorter than typical mission cycles, and in particular, graduate student and career-development timelines are much shorter than mission timeframes. Therefore, the growth and continued development of a robust workforce capable of conducting complex space missions and analyzing the scientific data returned from such missions does not depend on individual missions as much as it depends upon a consistent, sustained program that educates and develops planetary scientists.

SUPPORT NEEDED TO EDUCATE FUTURE INNOVATIONS AND INNOVATORS

Earth science research and education are fundamental to training the next generation of Earth science professionals. We are very concerned that cuts in Earth science funding will cause students and young professionals to leave the field, potentially leading to a lost generation of professionals in areas that are already facing worker shortages.

A 2013 report by the National Research Council, *Emerging Workforce Trends in the Energy and Mining Industries: A Call to Action*, found, "In mining (nonfuel and coal) a personnel crisis for professionals and workers is pending and it already exists for faculty." Another recent study, *Status of the Geoscience Workforce Report 2014*, found an expected deficit of approximately 135,000 geoscientists by 2022.

Increased NSF and NASA investments in Earth science education are necessary to meet these workforce needs and develop an informed, science-literate electorate. Earth scientists will be essential to meeting the environmental and resource challenges of the twenty-first century. NSF's Education and Human Resources Directorate researches and improves the way we teach science and provides research and fellowship opportunities for students to encourage them to continue in the sciences. Similarly, NASA's educational programs have inspired and led many into science careers. GSA fully supports these efforts, as well as new and existing programs to make the geoscience workforce more diverse.

Please contact GSA Director for Geoscience Policy Kasey White at kwhite@geosociety.org for additional information or to learn more about the Geological Society of America—including GSA Position Statements on water resources, planetary research, energy and mineral resources, natural hazards, climate change, and public investment in Earth science research.

PREPARED STATEMENT OF STEPHEN P. HALBROOK,¹ ATTORNEY AT LAW

MARCH 1, 2016.

Prepared for the Subcommittee on Commerce, Justice, and Science, and Related Agencies, U.S. Senate, Committee on Appropriations

Re: White House Executive Action on Firearms

Bureau of Alcohol, Tobacco, Firearms & Explosives

Hearing on the Department of Justice's Role in Implementing New Executive Actions Related to Gun Control

The administration has announced that persons who wish to engage in the business of dealing in firearms at gun shows should obtain licenses and conduct background checks. The President is apparently unaware that the Bureau of Alcohol, Tobacco, Firearms & Explosives has a long-standing policy of refusing to issue licenses to persons who wish to engage in the business of selling firearms only at gun shows. This policy is not justified by any law or regulation and should be changed.

The *Fact Sheet: New Executive Actions to Reduce Gun Violence and Make Our Communities* (Jan. 4, 2016) states as its very first point: "1. Keep guns out of the wrong hands through background checks. The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) is making clear that it doesn't matter where you conduct your business—from a store, at gun shows, or over the Internet: If you're in the business of selling firearms, you must get a license and conduct background checks."²

Yet ATF has a long-term policy of refusing to issue licenses to persons who wish to engage in the business of selling firearms only at gun shows. The ATF Form 7, Application for Federal Firearms License, states: "18a. Do You Intend To Sell Firearms Only at Gun Shows? (If yes, do not submit application)."³ Thus, to the extent that persons wish to engage in the firearm business only at gun shows, which would entail conducting background checks, the inability to obtain licenses is ATF's own doing.

Yet both the administration and ATF have been completely silent on this discrepancy. Why the sudden discovery that persons who engage in the business only at gun shows are entitled to a license? Will the license application be amended to delete the above disqualification?

Among the qualifications in the Gun Control Act for issuance of a Federal firearms license is that "the applicant has in a State (i) premises from which he conducts business subject to license under this chapter or from which he intends to conduct such business within a reasonable period of time. . . ." 18 U.S.C. § 923(d)(1)(E). ATF has previously interpreted this to mean that a dealer must sell firearms at the licensed premises, which is a qualification for selling firearms at gun shows. But a dealer who sells only at guns shows would still conduct business subject to license when buying and receiving firearms at the licensed premises, in order to resell them at gun shows.

ATF's premises-bound reading was rejected in *United States v. Ogles*, 440 F.3d 1095 (9th Cir. 2006) (*en banc*). A licensee sold a firearm at a gun show in a State other than the State in which the licensed premise was located (ATF maintains that a licensee can sell at a gun show only within the same State). While it is unlawful for any person "except . . . a licensed dealer" to engage in the business of dealing in firearms, the indictment alleged that the defendant "engaged in the business of dealing firearms without a license, *that is outside the State in which the licensee's place of business was located*." *Id.* at 1098. The court stated: "Curiously, the indictment included a locality requirement, which the text of the statute does not." *Id.*

Ogles added that "a gun dealer's license under 18 U.S.C. § 922(a)(1)(A) is not location-specific. . . ." *Id.* at 1099. One judge commented: "Belatedly, but without any evident embarrassment, the Government stated unequivocally that it had reevaluated its position and acknowledged that *Ogles* could not 'be convicted as both a licensed and unlicensed person with regard to the same transaction and at the same time.'" *Id.* at 1105 (Reinhardt, J. concurring in part & dissenting in part).

While there is no case law on ATF's refusal to issue licenses to persons who wish to sell firearms only at gun shows, the above demonstrates the fallacy of ATF's view

¹ Author of *Firearms Law Deskbook and The Founders' Second Amendment*. Rerepresented a majority of members of Congress as *amici curiae* in *District of Columbia v. Heller*, 554 U.S. 570 (2008). See further www.stephenhalbrook.com.

² <https://www.whitehouse.gov/the-press-office/2016/01/04/fact-sheet-new-executive-actions-reduce-gun-violence-and-make-our>.

³ <https://www.atf.gov/file/61506/download>.

that in order to engage in the business of selling firearms at gun shows, one must also do so at the licensed premises. Nothing in the Gun Control Act makes any such requirement.

In sum, the administration demands that persons who wish to engage in the business of selling firearms only at gun shows obtain a license and conduct background checks. ATF refuses to issue licenses to such persons. ATF's policy should change.

PREPARED STATEMENT OF THE HUMAN FACTORS AND ERGONOMICS SOCIETY

On behalf of the Human Factors and Ergonomics Society (HFES), we are pleased to provide this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, and Science, and Related Agencies for the official record. HFES urges the subcommittee to provide \$8 billion for the National Science Foundation (NSF), in the fiscal year 2017 appropriations process.

HFES and its members recognize and appreciate the challenging fiscal environment in which we as a Nation currently find ourselves; however, we believe strongly that investment in scientific research serves as an important driver for innovation and the economy and for maintaining American global competitiveness. We thank the subcommittee for its longtime recognition of the value of scientific and engineering research and its contribution to innovation in the United States.

THE VALUE OF HUMAN FACTORS AND ERGONOMICS SCIENCE

HFES is a multidisciplinary professional association with over 4,500 individual members worldwide, including psychologists and other scientists, engineers, and designers, all with a common interest in designing safe and effective systems and equipment that maximize and adapt to human capabilities.

For over 50 years, the U.S. Federal Government has funded scientists and engineers to explore and better understand the relationship between humans, technology, and the environment. Originally stemming from urgent needs to improve the performance of humans using complex systems such as aircraft during World War II, the field of human factors and ergonomics (HF/E) works to develop safe, effective, and practical human use of technology. HF/E does this by developing scientific approaches for understanding this complex interface, also known as "human-systems integration." Today, HF/E is applied to fields as diverse as transportation, architecture, environmental design, consumer products, electronics and computers, energy systems, medical devices, manufacturing, office automation, organizational design and management, aging, farming, health, sports and recreation, oil field operations, mining, forensics, and education.

With increasing reliance by Federal agencies and the private sector on technology-aided decisionmaking, HF/E is vital to effectively achieving our national objectives. While a large proportion of HF/E research exists at the intersection of science and practice—that is, HF/E is often viewed more at the "applied" end of the science continuum—the field also contributes to advancing "fundamental" scientific understanding of the interface between human decisionmaking, engineering, design, technology, and the world around us through research funded by NSF. The reach of HF/E is profound, touching nearly all aspects of human life from the healthcare sector, to the ways we travel, to the hand-held devices we use every day.

HUMAN FACTORS AND ERGONOMICS AT THE NATIONAL SCIENCE FOUNDATION

HFES and its members believe strongly that Federal investment in NSF will have a direct and positive impact on the U.S. economy, national security, and the health and well-being of Americans. It is for these reasons that HFES supports robust funding for the Foundation to encourage further advancements in the fields of technology, education, defense, and healthcare, among others. In the past, NSF funding for HF/E basic research has strengthened interdisciplinary partnerships allowing for a multilateral approach to technology research and development, including the human and user perspectives. The benefits of this research are not confined to one field but rather span across a range of disciplines to increase understanding of the way humans interact with technology, as well as with each other.

In particular, NSF funds HF/E research to:

—Better understand and improve the effectiveness of how individuals, groups, organizations, and society make decisions.¹

¹Decision, Risk & Management Sciences (DRMS) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423).

- Improve understanding of the relationship between science and engineering, technology, and society, in order to advance the adoption and use of technology.²
- Gain a better understanding of how humans and computers interact to ensure the development of new devices or environments that empower the user.³
- Inform decisionmaking in engineering design, control, and optimization to improve individual engineering components and entire systems.⁴

CONCLUSION

Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, HFES supports an overall fiscal year 2017 NSF budget of \$8 billion. This investment funds important research studies, enabling an evidence-base, methodology, and measurements for improving organizational function, performance, and design across sectors and disciplines.

On behalf of HFES, we would like to thank you for the opportunity to provide this testimony. Please do not hesitate to contact us should you have any questions about HFES or HF/E research. HFES truly appreciates the subcommittee's long history of support for scientific research and innovation.

[This statement was submitted by William S. Marras, President, and Lynn Strother, Executive Director.]

PREPARED STATEMENT OF THE INDEPENDENT REVIEW TEAM

Thank you for the opportunity to testify today and to address the serious funding needs that have limited and continue to hinder the operations of tribal judicial systems in Indian Country. We are representing the Independent Tribal Court Review Team. We thank this subcommittee for the additional \$10.0 million funding in fiscal year 2010, the last significant increase. These funds were a blessing to tribes. Even minimal increases are always put to good use. It is the strong recommendation of the Independent Tribal Courts Review Team that the Federal tribal courts budget be substantially increased in fiscal year 2017 to support the needs of tribal judicial systems.

BUDGET PRIORITIES, REQUESTS AND RECOMMENDATIONS

1. +\$2.6 Million—Support fiscal year 2017 proposed increased for tribal courts
2. +\$58.4 Million authorized under the Indian Tribal Justice Act of 1993, Public Law 103-176, 25 USC 3601 and re-authorized in year 2000 Public Law 106-559 (no funds have been appropriated to date)
3. Support the requests and recommendations of the National Congress of American Indians

The increase will support:

1. Hiring and training of court personnel
2. Compliance with the Tribal Law and Order Act of 2010
3. Compliance with and implement the VAWA Act of 2013
4. Salary increases for existing judges and court personnel
5. State-of-the-art technology for tribal courts
6. Security and security systems to protect court records and privacy of case information
7. Tribal court code development
8. Financial code development

The Independent Tribal Courts Review Team supports the proposed \$2.6 million increase for Tribal courts in the fiscal year 2017 President's Budget.—Tribal courts need an immediate, sustained and increased level of funding. The lack of funding has delayed implementation of the Tribal Law and Order Act (TLOA) and the Violence Against Women Act (VAWA) to a critical level and the resources that have been appropriated are required to provide attorneys to represent non-Indian defendants which further strain the capacity of the tribal judicial system. Tribal systems remain underfunded, understaffed and ill-equipped to function effectively and in a manner comparable to non-Indian government judicial systems. Tribal courts are at

² Science, Technology, and Society (STS) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5324&org=SES&from=home).

³ Human Centered Computing (HCC) Program (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503302&org=IIS&from=home).

⁴ Systems Engineering and Design Cluster (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13473&org=CMMI&from=home).

a critical stage in terms of need. The Tiwahe Initiative, as a means to be responsive to tribal concerns, demonstrates that the administration and Congress are listening to the tribes, but there needs to be a greater effort to fund the authority that was enacted in 1993.

Section 402 of TLOA reauthorized the Tribal Justice Act, and Indian Tribal Justice Technical and Legal Assistance Act of 2001. These Acts authorize funding for tribal court judges, court personnel, public defenders, court facilities, and the development of records management systems and other needs of tribal court systems. The Tribal Justice Act, originally enacted December 1993, authorized the appropriation of \$58.4 million in tribal court base funding. Yet, not a single dollar under the Tribal Justice Act has been appropriated in the 22 years since it was enacted. Of particular note is the provision of the Tribal Justice Act that states that Federal funds may be used specifically for “training programs and continuing education for tribal judicial personnel.” Appropriations should finally be made to fulfill the promise of these Acts.¹ We recommend that the Interdepartmental Tribal Justice, Safety and Wellness Session, of which the Department of the Interior (DOI) is a member, resume outreach to support the efforts of TLOA, VAWA and the Tiwahe Initiative.

The Tiwahe Initiative was launched in 2015 to address several lagging family welfare and poverty issues in Indian Country including a strategy to reduce incarceration in Indian Country. The alternative to incarceration is intended to address underlying causes of repeat offenses, such as substance abuse and the lack of adequate social service support, by utilizing alternative courts to increase treatment opportunities, probation programs, and interagency and intergovernmental partnerships with tribal, State and Federal stakeholders. In response to the unusual high rates of alcohol and drug related repeat offenders that are dominating the resources of the justice system, the Bureau of Indian Affairs (BIA) created the Diversion and Re-Entry Division (DRD) within the Tribal Justice Support Directorate. In fiscal year 2016 tribal courts received a 4.9 percent increase, and the budget request for 2017 is \$2.6 million over the enacted 2016 level. There is an even greater need to ensure that court personnel are trained, equipped and prepared to address these new challenges. We support the fiscal year 2017 proposed \$21.0 million increase for Tiwahe to expand social services, Indian Child Welfare, housing, tribal courts and job placement and training.

Background:

The Bureau of Indian Affairs provides funding to tribal governments to supplement their justice systems including courts. Tribal courts play a “vital role” in Tribal Self-Determination and Self-Governance as cited in long-standing Federal policy and Acts of Congress. Funding levels from BIA to support tribal justice systems have not met the Federal obligations.

There is a great deal of variation in the types of tribal courts and how they apply laws. Some tribal courts resemble Western-style courts in that written laws and court procedures are applied. Others use traditional Native means of resolving disputes, such as peacemaking, elders’ councils, and sentencing circles. Some tribes have both types of courts. The BIA also manages a small number of CFR (Code of Federal Regulations) courts.

Since 1999, Bureau of Justice Assistance (BJA) in the Department of Justice (DOJ) has administered the Tribal Courts Assistance Program, designed to provide funds for tribes to plan, operate, and enhance tribal judicial systems. They have made attempts to evaluate tribal courts but discovered their means of doing so was insensitive to American Indian and Alaska Native (AI/AN) people and unrealistic in the absence of elements that were key to Indian Country, such as: (1) the importance of tribal culture and traditions; (2) the inability to apply State and local criminal justice initiatives to tribal settings; (3) the lack of cooperation from non-tribal entities; and, (4) the lack of available data on tribal justice.

The Independent Tribal Court Review Team has had more hands on success in reviewing tribal court systems. For 7 years, we traveled throughout Indian Country assessing how tribal courts are operating. During this time, we have completed 84 Court Reviews. We also completed 28 Corrective Actions. There is no one with more hands-on experience and knowledge regarding the current status of tribal courts than our Review Team.

Justification for Request:

1. *Hiring and Training of Court Personnel.*—Tribal courts make do with underpaid staff, under-experienced staff and minimal training. (We have determined

¹Defining the Indian Civil Rights Act’s “Sufficiently Trained” Tribal Court Judge, Jill Elizabeth Tompkins, *American Indian Law Journal* [Vol. 4:53].

that hiring tribal members limits the inclination of staff to move away; a poor excuse to underpay staff.)

2. *Compliance with the Tribal Law & Order Act of 2010.*—To provide judges, prosecutors, public defenders, who are attorneys, who are bared to do “enhanced sentencing” in tribal courts.
3. *Compliance with the 2013 VAWA Act.*—To provide tribal courts with the ability to provide non-Indians with all the rights under the U.S. Constitution in domestic violence actions in tribal courts (12 person juries, provide licenses attorneys for non-Indians, provide licensed attorneys in court personnel in domestic violence cases as in TLOA, etc.)
4. *Salary Increases for Existing Judges and Court Personnel.*—Salaries should be comparable to local and State court personnel to keep pace with the non-tribal judicial systems and be competitive to maintain existing personnel.
5. *Tribal Courts Need State-of-the-Art Technology.*—(Software, computers, phone systems, tape recording machines.) Many Tribes cannot afford to purchase or upgrade existing court equipment unless they get a grant. This is accompanied by training expenses and licensing fees which do not last after the grant ends.
6. *Security and Security Systems to Protect Court Records and Privacy of Case Information.*—Most tribal courts do not even have a full time Bailiff, much less a state-of-the-art security system that uses locked doors and camera surveillance. This is a tragedy waiting to happen.
7. *Tribal Court Code Development.*—Tribes cannot afford legal consultation. A small number of tribes hire on-site staff attorneys. These staff attorneys generally become enmeshed in economic development so code development does not take priority. Tribes make do with under-developed codes. The Adam Walsh Act created a hardship for tribes who were forced to develop codes, without funding, or have the State assume jurisdiction. (States have never properly overseen law enforcement in a tribal jurisdiction.)
8. *Financial Code Development.*—We have rarely seen tribes with developed financial policies. The process of paying a bond, for example, varies greatly from tribe to tribe. The usual process of who collects it, where it is collected and how much it is, is never consistent among tribes.

There are many positive aspects about tribal courts. It is clear that tribal courts and justice systems are vital and important to the communities where they are located. Tribes value and want to be proud of their court systems. Tribes with even modest resources tend to allocate funding to courts before other costs. After decades of existence, many tribal courts, despite minimal funding, have achieved a level of experience and sophistication approaching, and in some cases surpassing, local non-Indian courts.

Tribal courts, through the Indian Child Welfare Act, have mostly stopped the wholesale removal of Indian children from their families. Indian and non-Indian courts have developed formal and informal agreements regarding jurisdiction. Tribal governments have recognized the benefit of having law-trained Judges, without doing away with judges who have cultural/traditional experience. Tribal court systems have appellate courts, jury trials, well-cared-for courthouses (even the poorer tribes), and tribal bar listings and fees. Perhaps most importantly, tribes recognize the benefit of an independent judiciary and have taken steps to insulate courts and judges from political pressure. No longer in Indian Country are judges automatically fired for decisions against the legislature.

Tribal courts have other serious needs. Tribal appellate court judges are mostly attorneys who dedicate their services for modest fees that barely cover costs for copying and transcription fees. Tribal courts do offer jury trials. In many courts, one sustained jury trial will deplete the available budget. The only place to minimize expenses is to fire staff. Many tribal courts have defense advocates. These advocates are generally not law trained and do a good job protecting an individual's rights (including assuring speedy trial limitations are not violated.) However, this is a large item in court budgets and if the defense advocate, or prosecutor, should leave, the replacement process is slow.

On behalf of the Independent Tribal Court Review Team, Elbridge Coochise, Ralph Gonzales, Charles Robertson, Philip Lujan and Myrna Rivera, thank you for this opportunity to appear before you today.

PREPARED STATEMENT OF THE INNOCENCE PROJECT

On behalf of the Innocence Project, thank you for allowing me to submit written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies as it considers budget requests for fiscal year 2017,

and thank you for the subcommittee's support of innocence and forensic science research programs in fiscal year 2016. I write to request fiscal year 2017 funding for the following programs, please:

- \$5 million for the Wrongful Conviction Review Program at the Department of Justice (DOJ), Bureau of Justice Assistance (the Wrongful Conviction Review Program is a part of the Capital Litigation Improvement Program)
- \$5 million for the Kirk Bloodsworth Post-Conviction DNA Testing Program (the "Bloodsworth Program") at the DOJ, National Institute of Justice (NIJ);
- \$14 million for the Paul Coverdell Forensic Sciences Improvement Grant Program (the "Coverdell Program") at the NIJ;
- \$5 million for the Department of Justice to support the National Commission on Forensic Science; related forensic science standards setting activities at the National Institute of Standards and Technology (NIST); and implementation research at the NIJ;
- \$15 million for NIST to support forensic science research and measurement science.

National Registry of Exonerations data show that the number of exonerations has significantly increased since Federal innocence programs, the Bloodsworth Post-Conviction DNA Testing and Wrongful Convictions Review programs, began to receive funding in 2008 and 2009, respectively. (See <http://www.law.umich.edu/special/exoneration/Pages/Exoneration-by-Year.aspx>). This dramatic increase in the number of exonerations is in part a result of the Federal decision to invest in this critical component of the criminal justice system. In the 20 years prior to the initiation of innocence program funding (from 1989 to 2008), the rate of exonerations was much lower. In the last 3 years, the numbers of exoneration cases has been at its highest level, with 2015 being the best year—149 exonerations last year alone. These statistics show the power and need to invest in Federal innocence and forensic science programs.

Additionally, freeing innocent individuals and preventing wrongful convictions through reform greatly benefits public safety. Every time DNA identifies a wrongful conviction, it enables the identification of the real perpetrator of those crimes. True perpetrators have been identified in approximately half of the over 300 DNA exoneration cases. Unfortunately, many of these real perpetrators went on to commit additional crimes while an innocent person was convicted and incarcerated in their place.

To date, 337 individuals in the United States have been exonerated through DNA testing, including 20 who served time on death row. These innocents served an average of 14 years in prison before exoneration and release. However, the value of Federal innocence and forensic science programs is not to just these exonerated individuals. It is important to fund these critical programs because reforms and procedures that help to prevent wrongful convictions enhance the accuracy of criminal investigations, strengthen criminal prosecutions, and result in a stronger, fairer system of justice that provides true justice to victims of crime.

WRONGFUL CONVICTION REVIEW PROGRAM

We know that wrongful convictions occur in cases where DNA evidence is not sufficient or even available to prove innocence. The National Registry of Exonerations currently lists a total of almost 1,800 exonerations since 1989—over 300 of which were based primarily on DNA. The Wrongful Conviction Review Program provides critical support to ensure that experts are available to navigate the complex landscape of post-conviction litigation, as well as oversee the thousands of volunteer hours local innocence organizations leverage to help investigate these complex cases and support the significant legal work they require. Between January 2015 and January 2016, the Wrongful Conviction Review Program contributed to the exoneration of 16 innocent individuals.

The Wrongful Conviction Review Program provides funding to local innocence organizations so that they may provide this type of expert, high quality, and efficient representation for innocent individuals. The program's goals are both to alleviate burdens placed on the criminal justice system through costly and prolonged post-conviction litigation and to identify, whenever possible, the real perpetrator of the crime.

To help continue this important work, we urge you to provide \$5 million for the Wrongful Conviction Review Program in fiscal year 2017. (Please note that the Wrongful Conviction Review Program is a part of the Capital Litigation Improvement Program.)

THE BLOODSWORTH PROGRAM

The Kirk Bloodsworth Post-Conviction DNA Testing Program supports States and localities that want to pursue post-conviction DNA testing in appropriate cases. The program does not directly fund the work of local innocence organizations, but instead focuses on State and local grantees, including law enforcement agencies, crime laboratories, and others—often in collaboration with each other, as well as with local innocence organizations. For example, a Bloodsworth grant to Arizona allowed the Arizona Attorney General's Office to partner with the Arizona Justice Project to create the Post-Conviction DNA Testing Project. This effort canvassed the Arizona inmate population, reviewed cases, worked to locate evidence and filed joint requests with the court to have evidence released for DNA testing. In addition to identifying the innocent, Arizona Attorney General Terry Goddard noted that the “grant enable[d] [his] office to support local prosecutors and ensure that those who have committed violent crimes are identified and behind bars.”¹ Such joint efforts have been pursued in many other States.

The Bloodsworth program is a powerful investment for States seeking to free innocent individuals and to identify the true perpetrators of crime. The program has resulted in the exonerations of 28 wrongfully convicted persons in 10 States. The true perpetrator was identified in 11 of those cases. For example, Virginian Thomas Haynesworth, who was wrongfully incarcerated for 27 years, was freed thanks to Bloodsworth-funded DNA testing that also revealed the real perpetrator. The real perpetrator in that case went on to terrorize the community by attacking 12 women, with most of the attacks and rapes occurring while Mr. Haynesworth was wrongfully incarcerated. Given the importance of this program to both innocent individuals and public safety, we urge you to provide \$5 million to continue the work of the Bloodsworth Post-Conviction DNA Testing Program in fiscal year 2017.

THE COVERDELL PROGRAM

Recognizing the need for independent government investigations in the wake of allegations of forensic negligence or misconduct, Congress created the forensic oversight provisions of the Coverdell Program, a crucial step toward ensuring the integrity of and improving public confidence in forensic evidence. Specifically, in the Justice for All Act, Congress required that

[t]o request a grant under this subchapter, a State or unit of local government shall submit to the Attorney General . . . a certification that a government entity exists and an appropriate process is in place to conduct independent external investigations into allegations of serious negligence or misconduct substantially affecting the integrity of the forensic results committed by employees or contractors of any forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility in the State that will receive a portion of the grant amount.²

The Coverdell Program provides State and local crime laboratories and medical examiner offices with much needed Federal funding to carry out their work both efficiently and effectively. As forensic science budgets find themselves on the chopping block in many States and localities, and as Federal bodies recommend the implementation of new policies, standards, and guidelines, the Coverdell funds are critical to ensure that crime labs can function both efficiently and effectively. As the program supports both the capacity of crime labs to process forensic evidence and the essential function of ensuring the integrity of forensic investigations in the wake of serious allegations of negligence or misconduct, we urge you to provide \$14 million for the Coverdell Program in fiscal year 2017.

FORENSIC SCIENCE IMPROVEMENT

To continue the critical work to improve forensic science, and help prevent wrongful convictions, we urge you to provide the following amounts for forensic science improvements, including:

- \$5 million for the Department of Justice, including:
 - \$1 million for the DOJ–NIST National Commission on Forensic Science to continue its work.
 - \$1 million for the National Institute of Justice to conduct implementation and applied research in this area.

¹ Arizona receives Federal DNA grant, <http://community.law.asu.edu/news/19167/Arizona-receives-Federal-DNA-grant.htm> (last visited Mar. 13, 2012).

² 42 U.S.C. § 3797k(4) (emphasis added).

- \$3 million directed to NIST to support technical standards development in forensic science through the Organization of Scientific Area Committees.
- \$15 million for the National Institute of Standards and Technology (NIST) at the Department of Commerce to support forensic science research and measurement science.

As the Federal entity that is both perfectly positioned and institutionally constituted to conduct measurement science and foundational research in support of forensic science, NIST's work will improve the validity and reliability of forensic evidence, a need cited by the National Academy of Sciences 2009 report, *Strengthening Forensic Science in the United States: A Path Forward*.³ NIST's reputation for innovation will result in technological solutions to advance forensic science applications and achieve a tremendous cost savings by reducing court costs posed by litigating scientific evidence.

NIST forensic science standards setting groups are seen by many as the most significant Federal forensic science initiative in recent years. State and local forensic scientists, who conduct the vast majority of forensic science casework, are in strong support and are significantly involved in this effort. Also, the National Commission on Forensic Science, a partnership between the Department of Justice and the Department of Commerce through NIST, is an important policy guidance group, which includes State and local systems experts as well as leading scientific experts. At a time when public safety and national security are some of our Nation's top priorities, it is imperative that Congress invest in scientific tools that support these endeavors. The Coverdell Program and forensic science activities and research at NIJ and NIST will help to greatly improve forensic disciplines and propel forensic science toward greater accuracy and reliability.

Thank you for your leadership in helping to ensure the integrity, accuracy, and reliability of our Nation's criminal justice system. We urge you to support all of the aforementioned programs, including the Wrongful Conviction Review; Bloodsworth; Coverdell; and forensic science programs. If you have any questions or need additional information, please do not hesitate to contact me at rbrown@innocenceproject.org.

[This statement was submitted by Rebecca Brown, Policy Director.]

PREPARED STATEMENT OF THE INSTITUTE OF MAKERS OF EXPLOSIVES

Interest of the IME

The Institute of Makers of Explosives (IME) is a nonprofit association founded over a century ago to provide accurate information and comprehensive recommendations concerning the safety and security of commercial explosive materials. Our mission is to promote safety and protection of employees, users, the public and the environment, and to encourage the adoption of uniform rules and regulations in the manufacture, transportation, storage, handling, use and disposal of the explosive materials used in blasting and other essential operations. IME represents U.S. manufacturers, distributors and motor carriers of commercial explosive materials and oxidizers as well as other companies that provide related services. The majority of IME members are "small businesses" as determined by the U.S. Small Business Administration.

Millions of metric tons of high explosives, blasting agents, and oxidizers are consumed annually in the United States. These materials are essential to the U.S. economy. Energy production, construction, mining, quarrying, demolition, and other specialized applications begin with the use of commercial explosives. IME member companies produce 99 percent of these commodities. These products are used in every State and are distributed worldwide. The ability to manufacture, distribute, and use these products safely and securely is critical to this industry.

Commercial explosives are highly regulated by a myriad of Federal and State agencies. The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) plays a predominant role in assuring that explosives are manufactured, identified, tracked, and stored in a safe and secure manner and received only by authorized persons. It is in the standpoint, as a highly regulated industry that shares ATF's focus on safety and security, that we offer the following perspectives on the fiscal year 2017 budget submission.

³National Research Council. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press, 2009. doi:10.17226/12589, p. 22–23.

ATF's Explosives Regulatory Program

IME understands the difficult decisions that ATF and the Federal Government face when allocating scarce resources. We also understand the other important work and responsibilities that ATF is assigned. Nevertheless, the members of IME, their employees and customers rely on a properly funded regulatory program. The success of ATF's explosives programs in preventing the misappropriation of commercial explosives should not be seen as an opportunity to reallocate funding, but that a base level of funding is necessary for ATF to retain a cadre of trained personnel to perform these vital services. The commerce of explosives is so closely regulated that failure to provide adequate personnel and resources can be detrimental to our industry, our customers, our employees, and the industrial sector of the U.S. economy.

On January 13, 2016, IME sent a letter to the House and Senate Subcommittees on Commerce, Justice and Science Appropriations, requesting that no funds be reprogrammed from fiscal year 2016 appropriations used by ATF to administer the Bureau's explosives programs in order to implement the President's recent Executive order to reduce gun violence. We were pleased to see no reprogramming took place, and instead the administration is seeking programmatic increases to fund the initiative.

ATF is the primary Federal law enforcement agency that regulates the explosives industry, licensing and permitting businesses and individuals to engage in the business of manufacturing, importing, or dealing in explosives, or receiving or transporting explosives materials.¹ By law, ATF must inspect an estimated 10,000 explosives licensees and permittees at least once every 3 years. ATF's workload also involves ensuring background checks of employee possessors of explosives and responsible persons. The Bureau estimates that the requirement to inspect 100 percent of the licensees and permittees within their 3-year license/permit cycle consumes between 25 and 41 percent of available inspector resources in any given year. In the budget submission, ATF acknowledges the staffing difficulties it faces in the next few years as hundreds of experienced personnel with highly specialized skill sets are expected to retire. IME urges Congress to review ATF's staffing needs and ensure the Bureau has sufficient explosive expertise that is critical to the success of the explosives-related programs.

In past years, IME has recommended that ATF harmonize its vetting and clearance procedures with those used by other Federal programs. Doing so would allow ATF's vetting program to be reciprocally recognized by these programs and save time and resources of the agency and the individuals being vetted. In 2015, the Department of Homeland Security moved to accept ATF's vetting program. However, concerns remain about the equivalency of the ATF program with other Federal vetting programs because the Bureau's program lacks recurrent vetting and fails to prohibit individuals on the Terrorist Watchlist. We strongly encourage efforts to harmonize ATF's vetting standards and procedures with those used by other agencies.

ATF-Industry Partnership

National Center for Explosives Training and Research

IME would like to commend ATF for its work at the National Center for Explosives Training and Research (NCETR), including training, testing and research, which is critically important for the safety and security of explosive materials. IME and its member companies employ recognized subject matter experts in the safe and secure development, manufacture, handling and use of commercial explosives. IME welcomes continued opportunities to partner with NCETR on research and testing initiatives related to commercial explosives and encourages the subcommittee to ensure that NCETR receives sufficient funding and resources to continue its critical work.

United States Bomb Data Center

The U.S. Bomb Data Center (USBDC) is responsible for collecting and storing explosives-related incident data, to include information on thousands of explosives incidents investigated by ATF and other Federal, State, and local law enforcement agencies. While this data helps government entities perform trend analysis and compare incidents for similarities and crime methodologies, USBDC data also helps the industry in efforts to identify any potential weaknesses or reaffirm the effectiveness of safety and security practices, and to update industry standards accordingly. In 2013, USBDC reinstated the issuance of the Explosives Incident Report (EIR) for calendar years 2010–2013, including valuable information on fillers of improvised

¹ Fiscal Year 2017 ATF Budget Submission, page 6.

explosives devices and on thefts, losses, and recoveries categorized by the type and amount of explosives involved. IME has recently advised that 2014 data is forthcoming, and IME commends ATF on its commitment to release the EIR data to industry at least once per year.

IMESAFR

IME has spent years developing a credible alternative to strict interpretation of quantity distance tables used to determine safe setback distances from explosives. The result is a scientifically based computer model for assessing the risk from a variety of commercial explosives activities called IMESAFR.² ATF and other regulatory agencies are recognizing the value of IMESAFR. In April 2015, we were pleased to see ATF approve the first variance from the American Table of Distances (ATD) based on risk assessment using IMESAFR. NCETR has partnered with IME on efforts to further validate IMESAFR data and ensure transparency of the scientific process by participating in testing and supporting an IMESAFR Science Panel. We welcome and strongly encourage ATF's continued support and leadership related to IMESAFR. The benefits of risk-based modeling should continue to be recognized by ATF, and resources should be provided to develop policies that allow the use of such models to meet regulatory mandates.

International Engagement

One of ATF's strategic goals for 2010–2016 is, “Explosives, Bombs, and Bombings: Advance domestic and international explosives expertise to prevent, detect, and investigate acts of violent crime and terrorism, and to enhance public safety.” As the ATF works through the process of updating and revising its strategic plan for 2017 and beyond, IME encourages ATF to remain publicly committed to working at the international level to participate in international regulatory forums that advocate for the safety and security of explosives and that promote consistency in standards and policies. The United States must be a leader in explosive safety and security, and IME applauds ATF for re-engaging with the international regulatory explosives community.

Marking Harmonization Efforts

Explosive manufactures and importers are required to mark products with codes to aide law enforcement agencies in the U.S. and foreign countries in tracing lost or stolen materials. Additionally, others in the global supply chain also cooperate in these tracing efforts. However, more and more government entities are imposing their own unique system of identification marks without recognizing each other's marks. These redundant and competing marks create non-tariff barriers to trade and hampers successful tracing and investigation. IME has petitioned the United Nations (U.N.) Sub-Committee of Experts on the Transport of Dangerous Goods (TDG) to include in its model regulations a single, globally harmonized explosives marking protocol. ATF has issued a letter in support of IME's U.N. proposal to the U.S. head of delegation, the Department of Transportation, and assigned a representative to participate with the U.S. delegation. While the U.N. did not approve IME recommendations in 2015, we are again working to see these standards adopted in 2016. We thank ATF for the support and ask for continued support as we move forward with this important issue.

Industry Standards

IME holds in high regard the statutory obligation that ATF take into account industry's standards of safety when issuing rules and requirements. We continue to fulfill this obligation through our development of industry best practices for safety and security, membership in relevant standard-setting organizations, and active participation in forums for training. We have offered to ATF recommendations that we believe will enhance safety and security through our participation in the rule-making process, in the Bureau's important research efforts, and in other standard-setting activities.

On this issue, IME notes that ATF affirms its “use [of] risk-based assessments to focus limited inspection resources on entities that have been identified as at risk

²IMESAFR was built on the Department of Defense Explosives Safety Board's software model, SAFER. The DDESB currently uses SAFER and table-of-distances methods to approve or disapprove Department of Defense explosives activities. Not only can IMESAFR determine the amount of risk presented, but it can also determine what factors drive the overall risk and what actions would lower risk, if necessary. The probability of events for the activities were based on the last 20 years of experience in the U.S. and Canada and can be adjusted to account for different explosive sensitivities, additional security threats, and other factors that increase or decrease the base value.

for non-compliance.³ IME firmly believes that using risk-based measures will help ATF focus its resources where it can maximize the value of its efforts.

Conclusion

ATF plays a critical role in helping the explosives industry achieve and maintain a strong safety and security record. Even though explosives may be dangerous materials when in the wrong hands, the manufacture and distribution of explosives is accomplished with a remarkable degree of safety and security. The use of explosives is essential to sustain the economy, and the explosives industry and the general public are dependent on ATF. ATF must have adequate resources to fulfill its mission and keep the American public safe. It is up to Congress to ensure that ATF has the resources it needs. IME strongly recommends full funding for ATF's explosive programs.

PREPARED STATEMENT OF JAMESTOWN S'KLALLAM TRIBE

On behalf of the Jamestown S'Klallam Tribe, I am pleased to submit this written testimony on our funding priorities and requests for the fiscal year 2017 Department of Justice and Department of Commerce Budgets.

TRIBAL SPECIFIC—DEPARTMENT OF JUSTICE

1. Tribal Courts—\$20,000 (Office of Justice Programs)
2. DOJ Transparency Regarding Available Programs and the Effectiveness of CTAS

REGIONAL REQUESTS AND RECOMMENDATIONS—DEPARTMENT OF COMMERCE

1. Provide \$110 million for the Pacific Coastal Salmon Recovery Fund (NOAA/NMFS)
2. Provide \$14.7 million for the Pacific Salmon treaty, including the additional \$3 million for the 2008 Chinook Salmon Agreement (NOAA/NMFS)
3. Provide \$20.3 million for the Mitchell Act Hatchery Program (NOAA/NMFS)

NATIONAL REQUESTS AND RECOMMENDATIONS—DEPARTMENT OF JUSTICE

1. Hold Indian Country Programs Harmless from Budgetary Reductions, Rescissions and Sequestration
2. Provide Funding to the Civil Rights Commission to Update the Quiet Crisis Report of 2003
3. Fully Fund the Tribal Law and Order Act
4. Fully Fund Violence Against Women Act (VAWA) Extend the Bureau of Prisons Pilot Project for Violent Offenders
5. Eliminate Competitive Grant Funding
6. Create a 10 Percent Tribal Set-Aside for Victims of Crime Act Funding
7. Support the requests and recommendations of the National Congress of American Indians

TRIBAL SPECIFIC

Tribal Courts—Flexible 7 Percent Tribal Set-Aside for All Discretionary Office of Justice Programs (OJP) Programs

The Jamestown S'Klallam Tribe has repeatedly advocated for a 7 percent tribal set-aside from all discretionary Office of Justice Programs (OJP) programs to address public safety and tribal criminal justice needs in Indian country. This 7 percent set-aside would provide a more flexible grant structure to tribes, which was envisioned to complement the DOJ's Coordinated Tribal Assistance Solicitation (CTAS). We now know that this streamlined application model will never achieve its intended success unless and until it is accompanied by a streamlined funding mechanism. Stable funding for tribal courts is a prerequisite to ensure a safe, healthy and thriving tribal community. Although Congress and the administration have taken steps in recent years to try and address some of these concerns through the passage of the Tribal Law and Order Act (TLOA) of 2010 and the Reauthorization of the Violence Against Women Act (VAWA) of 2013, significant funding is needed in order to implement these new authorities to address the crisis level need in Indian coun-

³ Fiscal Year 2017 ATF Budget Submission, page 15.

try and elevate the safety and wellness of our tribal citizens and communities. Tribal court systems are evolving to meet the increasing demands of tribal communities and ensure that tribal citizens are provided with adequate legal representation and protection. Under TLOA and VAWA tribal courts are required to expand judicial services and meet certain costly thresholds, including, providing public defenders, recording criminal proceedings, and retaining legally trained and licensed tribal judges. Without adequate funding for tribal court systems, decisions to arrest, prosecute and detain will be based on financial restraints rather than in the best interest of public safety.

DOJ Transparency Regarding Available Programs and Effectiveness of CTAS

In fiscal year 2010, DOJ launched the Coordinated Tribal Assistance Solicitation (CTAS). As noted above the CTAS program is not supported by a funding mechanism that will support success of and has created other challenges and gridlocks for tribes. While CTAS grants can be used for a variety of justice programs and services in nine different areas the application process is highly competitive, tedious and complex and there are many restrictions imposed on how the funds may be utilized. It has taken numerous staff members a number of weeks to fill out and apply for the CTAS program with no guarantee that funding will be awarded. The process must be simplified and streamlined. There is also a lack of transparency, coordination and communication with respect to the programs and services that are available for tribes to access through CTAS or other Indian-centric programs at DOJ. We would like an accurate accounting of all of the programs, services and funding that is available for tribes; how the funds are being distributed; the percentage of the dollars that have been received by the tribes; steps DOJ has taken to coordinate with other agencies and tribal governments to implement tribal priorities and practices that bolster tribal justice systems and an analysis on the effectiveness and deficiencies of CTAS.

REGIONAL REQUESTS AND RECOMMENDATIONS—NOAA

1. *\$110 million for the Pacific Coastal Salmon Recovery Fund (NOAA/NMFS).*—The fiscal year 2016 appropriations provided a total of \$65.0 million. These funds have decreased from the peak of \$110.0 million in fiscal year 2002. The tribes' overall goal in the PCSRF program is to restore wild salmon populations while the key objective is to protect and restore important habitat in Puget Sound and along the Washington coast. These funds support policy and technical capacities within tribal resources management to plan, implement, and monitor recovery activities.

2. *\$14.7 million for the Pacific Salmon Treaty—The U.S. Section estimates that this funding is needed to implement national commitments created by the Treaty (NOAA/NMFS).*—The Pacific Salmon Commission (PSC) establishes fishery regimes, develops management recommendations, assesses each country's performance and compliance with the treaty, and is the forum for all entities to work towards reaching an agreement on mutual fisheries issues.

3. *\$20.3 million for the Mitchell Act Hatchery Program (NOAA/NMFS).*—Funding is provided for the operation and maintenance of hatcheries that release between 50 and 60 million juvenile salmon and steelhead in Oregon and Washington. This program has historically provided fish production for tribal treaty and non-tribal commercial and recreational fisheries in the Columbia River, and also contributes to ocean fisheries from Northern California to Southeast Alaska.

NATIONAL REQUESTS AND RECOMMENDATIONS DEPARTMENT OF JUSTICE

1. *Hold Indian Country Programs Harmless from Budgetary Reductions, Rescissions and Sequestration.*—Decades of unfulfilled Federal obligations has devastated tribal communities who continue to face persistent shortfalls and overwhelming unmet needs. Until tribes attain exclusive taxing jurisdiction within their tribal lands, Federal support remains critical to ensure the delivery of essential governmental services to our tribal citizens. The Federal trust obligation must be honored and vital programs and services for tribes must be sustained and held harmless in any budgetary deal enacted to reduce the national deficit.

2. *Civil Rights Commission—"Quiet Crisis Report 2003".*—We urge you to provide funding for the United States Commission on Civil Rights to update the "A Quiet Crisis Report". The 2003 Report assessed the adequacy of Federal funding and provided data on the unmet need in Indian country. The study highlighted the fact that Federal funding was insufficient to address the basic and urgent needs of American Indian/Alaska Native people funding gaps for Indian programs. This report is an important tool that tribes can use to demonstrate budget needs.

3. *Fully Fund the Tribal Law and Order Act (TLOA).*—The Tribal Law and Order Act was an important step in empowering tribes to better address the unique public

safety challenges and reduce the prevalence of violent crime in Indian country. However, effective implementation of TLOA is contingent upon adequate Federal funding. Funding is needed to implement the comprehensive and improved measures that were enacted to address the public safety crisis in tribal communities. The entire tribal justice system is dependent on this funding to carry out law enforcement, court, and detention functions, and to provide rehabilitation and preventive services.

4. *Extend the Bureau of Prisons Pilot Project for Violent Offenders.*—In 2010, the Bureau of Prisons (BOP) launched a pilot project to house certain tribal offenders sentenced in tribal courts in Federal prisons. The program allows any federally recognized tribe to request that BOP incarcerate up to 100 tribal violent offenders at a time under the authorities of TLOA. A 2014 report was submitted to Congress that provided details on the status and recommendations of the program and the BOP affirmed its support for the program and included a recommendation to make the current pilot program permanent. We implore Congress to heed this recommendation and reauthorize and make permanent the BOP pilot project.

5. *Eliminate Competitive Grant Funding.*—Grant funding is intended to be temporary, yet, many Federal agencies, including DOJ use grants as the primary funding mechanism for tribal justice programs. Tribal courts and justice systems are vital to the communities that they are operating in but they cannot be effective and efficient if they are forced to operate on grant funding. Many tribes cannot afford to provide additional financial assistance to their justice systems and often find themselves in a precarious and difficult position because when the funding runs out the system is forced to shut down. Many successful and innovative tribal justice programs have disappeared because the grant cycle has ended. Grant funding undermines core Self-Governance tenants and hinders the tribes ability to redesign programs and services that better address the needs of their communities. It creates uncertainty in planning, includes extensive regulation and overly burdensome reporting requirements, restricts the use of indirect costs, and, forces tribes to compete against each other under DOJ's priorities and guidelines. We urge congress to end the practice of using grants and competitive processes to fund justice systems in Indian country and establish a permanent recurring base funding system for tribally determined justice priorities.

6. *Fully Fund Violence Against Women Act (VAWA).*—Violence against Native women has reached epidemic proportions. The root cause of these high rates of violence was a justice system that forced tribal governments to rely on distant Federal, and in some cases, State officials to investigate and prosecute incidences of domestic violence committed by non-Natives against Native women. The statistics on violence against Native women show that outside law enforcement has proven ineffective in addressing these crimes of violence. Between 2005 and 2007, U.S. Attorneys declined to prosecute nearly 52 percent of violent crimes that occurred in Indian country; and 67 percent of cases declined were sexual abuse related cases. It is unconscionable to force tribes to submit to a system of justice that declines to prosecute over half the criminal cases brought before it and leaves our Native women without judicial recourse. On some reservations, Native women are murdered at a rate that is 10 times the national average. In 2016, \$2.5 million was appropriated for tribes to implement the new VAWA provisions.

7. *Create a 10 Percent Tribal Set-Aside for Victims of Crime Act Funding.*—Crime victimization rates on tribal lands have been estimated as much as 250 percent higher than the national rate and the rate of murder of American Indian/Alaska Native women on some reservations are 1000 percent higher than the national average. Tribal governments, like State governments, are responsible for addressing the needs of victims in their communities. Congress created the Crime Victims Fund in 1984 with the idea that money collected from those who commit crimes should be used to assist those that have been victimized. Each year, the fund is financed by the collection of funds, penalties and bond forfeitures from defendants convicted of Federal crimes. It is important to note that the fund receives no tax payer dollars. DOJ disburses funds to States and other entities. Despite the devastating rates of victimization in tribal communities, Indian tribes have largely been left out of the fund. In recent years, distributions from the fund have been about \$700 million. Collections, however, were as high as \$2.8 billion in 2013 and the balance of funds in the account is approximately \$13 billion dollars. Congress in 2015 and 2016 increased the distributions to \$2.3 billion. Indian tribes are only able to access these dollars through State pass through grants or very limited short term competitive DOJ grants. Many States do not provide funds to tribes for victim services and the vast majority of tribes are unable to access these funds at all. Congress could remedy this situation by enacting a 10 percent set aside of VOCA funds for tribes.

I would like to extend my thanks to the subcommittee for an opportunity to submit testimony on the fiscal year 2017 Appropriations for DOJ and DOC.

[This statement was submitted by Hon. W. Ron Allen, Tribal Chairman/CEO.]

PREPARED STATEMENT OF THE JOINT OCEAN COMMISSION INITIATIVE

Chairman Shelby, Ranking Member Mikulski, and other distinguished members of the subcommittee on Commerce, Justice, Science, and Related Agencies, we thank you for the opportunity to submit written testimony regarding the fiscal year 2017 Commerce, Justice, Science, and Related Agencies appropriations bill. The Joint Ocean Commission Initiative is a collaborative, bipartisan effort to implement the important work of the U.S. Commission on Ocean Policy and the Pew Oceans Commission. Our 2013 report, *Charting the Course: Securing the Future of America's Oceans*, contains recommendations to improve the management of our ocean resources that are echoed in this testimony. Furthermore, our testimony is informed by a series of regional ocean roundtables that we convened in the Arctic and on the East and West Coasts with regional, State, and local leaders to better understand the needs of their coastal regions. We are currently in the process of convening a roundtable for the Gulf of Mexico.

The Joint Initiative is highly appreciative of the progress your subcommittee has made in providing incremental, but substantive additional resources to critical ocean and coastal accounts. We are acutely aware of the challenges you face addressing the funding needs of all the programs within the jurisdiction of your subcommittee. The Joint Initiative believes a continued commitment to protecting base funding and core programs at NOAA, NSF, and NASA that help manage, protect, and better understand our Nation's oceans and coasts and the Arctic is an investment in the future of our country that will provide significant economic, social, ecological, and national security benefits. Maintaining and increasing investment in the following programs should be prioritized in fiscal year 2017 appropriations:

NATIONAL OCEANS AND COASTAL SECURITY FUND

The Joint Initiative strongly supports increasing NOAA's overall budget to \$6 billion and, in doing so, maintaining the recent trend toward balancing NOAA's portfolio to emphasize ocean and coastal priorities. For example NOAA's National Ocean Service (NOS) would be increased in NOAA's budget by nearly \$18 million to \$528 million. Specifically, The Joint Initiative strongly encourages funding the National Oceans and Coastal Security Fund (NOCS) at the requested \$10 million.

The Joint Initiative has a long history of leadership in the call for a dedicated oceans fund since the concept was initially proposed by both the U.S. Commission on Ocean Policy and the Pew Oceans Commission more than a decade ago. Allocating adequate and sustained funding has been a missing but essential link to any policy to achieve healthy oceans and coasts. The NOCS would support work by State and local governments, universities, non-profit organizations, and other oceans and coastal stakeholders to restore habitats, manage fisheries, plan for sustainable coastal development, enhance oceans monitoring and research, and acquire coastal properties for preservation.

COASTAL RESILIENCE

The Joint Initiative asks you to consider funding the Regional Coastal Resilience Grant program consistent with NOAA's fiscal year 2017 budget request at \$20 million, a \$10 million increase from the fiscal year 2016 appropriation. An important element of this program is its ability to provide competitive funding to support multi-State efforts to coordinate data sharing and improve decisionmaking across jurisdictions, implement innovative solutions to shared priorities, and effectively engage ocean and coastal stakeholders. Furthermore, resilient coastal communities are not only able to minimize loss and negative impacts to life, property, and the coastal ecosystem, they are also able to quickly return residents to productive activities and restore essential services. This is imperative to facilitating full and timely economic, social, and environmental recovery.

OCEAN ACIDIFICATION

The Joint Initiative believes the inclusion of \$22 million in the NOAA budget for the Integrated Ocean Acidification program is essential to help us begin to address the chemistry, variability, and impact of acidification on the marine environment. Ocean acidification is a global challenge needing global answers. It is evident along every shoreline in the United States, and its variability over time, with depth and horizontal space are not sufficiently measured or understood. While shellfish and coral reefs receive most of the attention related to ocean acidification, fisheries,

aquaculture, and coastal ecosystems and economies and jobs around the Nation will be greatly affected. Funding the Integrated Ocean Acidification program at NOAA at increased levels will allow us to measure and assess the spatial and temporal extent of the emerging threat of ocean acidification, and better understand the complex dynamics causing it.

ARCTIC

The Joint Initiative recommends that Congress make a significant investment through the fiscal year 2017 appropriations bill toward implementation of the National Strategy for the Arctic Region. Increased funding for Federal agencies operating in the Arctic, such as NOAA and NSF, is essential to our international leadership in the region and will enable cross-cutting efficiencies with the Coast Guard, the Navy, and the Department of the Interior.

The Joint Initiative convened an Arctic Ocean Leadership Roundtable with U.S. Arctic leaders and key stakeholders from multiple sectors to generate ideas for how local, State, and regional work can inform and influence national policy with regard to Arctic ocean and coastal issues. Many of the ideas generated can be implemented with increased investment in the Arctic. This includes improving coordination and data-sharing on oil spill planning, preparedness, and response, vessel tracking, and search-and-rescue, as well as investment in new icebreakers, aircraft, and shore-based infrastructure. Additionally, funding Arctic-related programs at NOAA enables a range of important services essential to understanding the Arctic including ocean observation, weather and sea ice predictions, mapping and charting, and sound management of marine resources.

SUSTAINED OCEAN OBSERVATIONS

We are strongly supportive of enhanced capabilities for NOAA's Office of Oceanic and Atmospheric Research (OAR), the Integrated Ocean Observing System, and similar programs at NSF. Specifically we ask you to consider funding OAR at \$500 million to support the continued and enhanced operations of this vital program. This funding is central to NOAA's ability to accurately forecast weather, enable communities to plan for and respond to climate events such as flooding and drought, and protect and manage the Nation's coastal and ocean resources.

Funding NOAA's Sustained Ocean Observations and Monitoring program under this account at \$42 million will provide information essential for accurate forecasting of hurricanes, tsunamis, calibrating satellites observations and monitoring fisheries. Sustained ocean observations will help maintain the continuity of long-term data sets that are essential for ensuring that communities are able to respond and adapt to a rapidly changing world, both today and into the future.

SUSTAINABLE FISHERIES

Over the last year, we have seen tremendous progress toward sustainable fisheries domestically and internationally. Through the commitment and tireless efforts of our fishermen, fishery management councils, scientists, and managers, the U.S. is poised to achieve this historic milestone in natural resource management. Not only that, but NOAA and other Federal agencies have announced new initiatives to combat illegal, unreported, and unregulated fishing on a global scale. The end of chronic overfishing means healthier ocean ecosystems and a brighter future for fishermen and coastal communities. The Joint Initiative supports domestic and international efforts to fully implement the recommendations in the Presidential Task Force on Combating Illegal, Unreported, and Unregulated (IUU) Fishing and Seafood Fraud and applauds Congress on the passage of the implanting legislation for the Port State Measures Agreement. The Joint Initiative asks the subcommittee to consider funding NOAA's National Marine Fisheries Service (NMFS) at the requested level of \$900 million and support other administration initiatives to combat IUU fishing.

OCEAN EXPLORATION

The Joint Initiative appreciates the subcommittee's long standing support of ocean exploration at NOAA and requests that you provide \$32 million for the Ocean Exploration program, consistent with funding in fiscal year 2016, to at least maintain the pace, scope, and efficiency of exploration. This would be \$12 million above the NOAA budget request for fiscal year 2017. A bipartisan effort since inception, the Ocean Exploration program was strongly endorsed by Congress when created in 2002. The program has greatly contributed to our knowledge of the ocean, producing Arctic surveys which enabled the U.S. to argue for an extension of our own Exclu-

sive Economic Zone; baseline characterization of the *Deepwater Horizon* site in the Gulf before and after the oil spill; discovery of new gas hydrates stretching from Cape Cod to Cape Hatteras, with implications for coastal hazards and ocean acidification; and new fishery habitat maps off the Northeast.

SCIENCE, RESEARCH, AND EDUCATION

The Joint Initiative calls attention to the need for consistent and dedicated funding for ocean science, research, and education. We ask you to increase funding for ocean science infrastructure, research, and grant programs at NOAA, NSF, and NASA that are working to improve our understanding of critical physical and biological ocean processes. These programs provide local, State, and national decision makers with the information they need to make informed decisions.

An essential element of ocean science is the supporting infrastructure. This includes a variety of platforms including ships, mooring, buoys, gliders, floats and autonomous underwater vehicles, as well as computational and data management hardware. This core infrastructure is the backbone of sustained ocean and coastal observations, and in combination with the remote sensing capabilities, is essential to establishing and maintaining the long-term in-situ databases that are essential to understanding changes in physical, biological and biogeochemical processes and systems. The ocean science community is dependent upon the infrastructure provided by NOAA, NSF and the Navy, and it is imperative that Congress provide operational and maintenance support necessary to keep this infrastructure functioning, and to support its regular modernization. Support for this infrastructure is spread across many agencies and programs, and we ask the subcommittee to recognize and adequately support these programs and activities.

In particular, we encourage you to provide \$7.964 billion for the NSF, including \$1.398 billion for the Geosciences Directorate and its Division of Ocean Science. NSF's investment in the geosciences has spurred innovations, addressed important national and global challenges, spurred new economic sectors, supported research that produces most of the technical geosciences jobs in American industry, and led to the development and implementation of advanced technologies that save lives, protect property, and support our economy. For example, investments supporting basic research in mathematics, physical sciences, computer sciences, and geosciences, have led to the development of sophisticated models, satellites, radar, and instrumentation that has greatly improved hurricane forecasting, now allowing for nearly a week of preparations by cities, businesses, institutions, and unquestionably saving lives. Now more than ever, America must grow a future technical geoscience workforce while the price of oil is so low, because we will need that educated workforce when oil prices recover.

We also urge \$2.03 billion in funding for the NASA's Earth Science Division, up from \$1.9 billion in fiscal year 2016 to support critically important ocean and coastal science and education. NASA improves our national capabilities to predict climate, weather, and natural hazards and better manage national resources.

CONCLUDING REMARKS

The Joint Initiative greatly appreciates your commitment to stretching scarce resources to address the challenges of the world's greatest maritime nation. We will continue to track progress in advancing key ocean and coastal programs and accounts in fiscal year 2017 and beyond. Recommendations from "Charting the Course" and other reports from the Joint Initiative identify specific areas of achievement and deficiency. Implementation of the recommendations will secure the future of our Nation's ocean ecosystems, and the critical resources they provide, and ensure that they will be abundant and able to support America's ocean, coastal, and Great Lakes economies and the jobs and communities on which our Nation depends. In that spirit, we urge you to resist riders which complicate the Nation's ability to coordinate State, regional and national policies to address urgent coastal and ocean issues.

Thank you for considering our requests as the subcommittee begins its fiscal year 2017 appropriations process. The Joint Initiative appreciates your attention to this matter and stands ready to assist you in advancing positive and lasting changes in the way we manage our Nation's oceans and coasts.

Joint Initiative Co-Chairs and Leadership Council Members

The Honorable William Ruckelshaus | The Honorable Norman Mineta

Frances Beinecke | Don Boesch | Lillian Borrone | The Honorable Norm Dicks
 Quentin Dokken | Vice Admiral Paul Gaffney | Robert Gagosian | Sherri Goodman
 Scott Gudes | The Honorable Conrad Lautenbacher | Margaret Leinen
 Christopher Lischewski | The Honorable Jane Lubchenco | Julie Packard
 The Honorable Leon Panetta | John Pappalardo
 The Honorable Pietro Parravano | Diane Regas | Randy Repass
 Andrew Rosenberg | The Honorable Christine Todd Whitman

PREPARED STATEMENT OF LAW PROFESSORS ON THE CONSTITUTION AND EXECUTIVE ACTION TO REDUCE GUN VIOLENCE

In speaking to the Nation in the wake of the mass shooting at Umpqua Community College in Roseburg, Oregon, President Obama implored Congress to act but also pledged that his administration would take whatever actions it could to reduce gun violence in America.¹

We, the undersigned professors with expertise in constitutional law, write to urge the President to follow through on his pledge. There are numerous actions the administration can take which are fully consistent with the constitutional limitations on the President's power, which preserve the Second Amendment rights of Americans, while reducing gun violence and saving lives.

Twice in the last decade, the Supreme Court has stressed that the Second Amendment right is "not unlimited" and that it is "not a right to keep and carry any weapon whatsoever in any manner whatsoever and for whatever purpose."² And twice in the last decade, the Court has made clear that a wide range of gun regulations are presumptively constitutional and do not infringe the Second Amendment. Indeed, the Court has endorsed the constitutionality of laws restricting access to firearms, regulating the carrying and storage of guns, and imposing conditions on gun sales that can keep guns out of dangerous hands.

The Court's recognition that these types of laws are compatible with the Second Amendment reflects the historical understanding of the constitutional right: since the Colonial and Founding Eras, robust government regulation of the ownership and use of firearms has coexisted alongside, and been understood as consistent with, the Second Amendment.³

That tradition continues today. Alongside numerous firearm laws adopted by State legislatures and municipal governments across the country, Congress has enacted a broad range of gun laws designed to promote public safety. Through a series of Federal statutes adopted over the course of the last century, Congress has prohibited dangerous people—including felons, convicted domestic abusers, and the dangerously mentally ill—from purchasing or possessing firearms.⁴ Congress has required that anyone engaged in the business of dealing firearms must obtain a Federal license, and has subjected licensed dealers to inspection and basic record-keeping requirements.⁵ And Congress has established a National Instant Criminal Background Check system and mandated that licensed gun dealers conduct criminal

¹The White House, Office of the Press Secretary, Statement by the President on the Shootings at Umpqua Community College, Roseburg, Oregon (Oct. 1, 2015); The White House, Office of the Press Secretary, Remarks by the President in Press Conference (Oct. 2, 2015).

²*District of Columbia v. Heller*, 554 U.S. 570, 626 (2008); *see also* *McDonald v. City of Chicago*, 561 U.S. 742, 786 (2010) (quoting *Heller*).

³*See generally* Saul Cornell, *A Well-Regulated Militia: The Founding Fathers and the Origins Of Gun Control* (2006); Adam Winkler, *Gunfight: The Battle Over the Right To Bear Arms in America* (2011); Robert J. Spitzer, *Guns Across America: Reconciling Gun Rules and Rights* (2015).

⁴*See* 18 U.S.C. §§ 922(d), (g).

⁵*See id.* § 922(a); 27 C.F.R. § 478.1 *et seq.*

background checks to ensure that would-be gun purchasers are not prohibited from purchasing a gun.⁶

Within our constitutional government of divided powers, it falls on the President to ensure that these congressional mandates “be faithfully executed.”⁷ As such, the President must ensure full compliance with the Federal gun laws that reflect the clear will of Congress. To do so, it is appropriate for the administration to issue such rules and regulations as are necessary to ensure that the laws are enforced as written and intended. Executive action to ensure robust enforcement of the law—including issuing clarifying guidance and directing comprehensive enforcement of Federal gun laws—is entirely compatible with the will of Congress and the President’s constitutional authority.⁸

Accordingly, we join the many individuals and organizations that have urged the President to take every action within the power of his administration to reduce gun violence and save lives. A recent report by the gun-violence-prevention organization Everytown for Gun Safety outlined more than a dozen actions within the President’s power,⁹ and we urge the administration to act promptly to explore how to implement these and any other measures within its authority.

We do not purport to offer here a comprehensive list of all actions that the administration might take to reduce gun violence. But we do highlight several important actions within the administration’s power that would ensure the Federal gun laws are applied consistent with congressional intent. Among these steps are:

- Clarifying which gun sellers are “engaged in the business” of dealing firearms, and therefore must obtain Federal licenses and conduct background checks on would-be gun purchasers. Just as services like eBay and Craigslist allow Americans to offer a broad range of goods for sale online, numerous Internet services facilitate the sale of large numbers of firearms by unlicensed dealers, frequently without conducting any background checks. The failure of these high-volume sellers to obtain licenses and conduct background checks creates a ready source of firearms for dangerous criminals and other prohibited persons, and fuels the illegal gun trafficking that arms criminals and undermines efforts to reduce gun violence. The administration should act to close this dangerous loophole.
- Directing the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) and Federal Bureau of Investigation (FBI) to identify which prohibited persons are most likely to commit crimes after failing a background check when attempting to buy a gun; to prosecute these individuals for illegally attempting to obtain firearms; and to inform State law enforcement whenever a prohibited person in their State fails a background check. It is common sense that law enforcement has a strong interest in knowing when anyone the law deems too dangerous to buy a gun attempts to do so. The administration should act to ensure prompt and appropriate follow-up by law enforcement when prohibited persons attempt to buy guns.
- Issuing guidance to ensure that the Federal statute prohibiting gun possession by persons convicted of “misdemeanor crimes of domestic violence” is interpreted broadly to prohibit gun possession by convicted abusers, regardless of their marital status. In 2009, and again just last year, the Supreme Court made clear that Congress intended the Federal domestic violence misdemeanor statute to be applied broadly to protect victims of abuse from gun violence.¹⁰ To effectuate this congressional directive, the administration should clarify that the term “similarly situated to a spouse” in the domestic violence misdemeanor law should be interpreted consistent with the Violence Against Women Act.¹¹

These are just three steps the administration could take today to help reduce gun violence, and we urge it to explore the numerous other ways in which executive action can save lives, even in the absence of new action by Congress. We urge President Obama to direct his administration to consider these and other steps that may be useful in reducing the deadly toll of American gun violence.

⁶See 18 U.S.C. § 922.

⁷U.S. Const. art. II, § 3.

⁸See *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 636–38 (1952) (Jackson, J., concurring) (noting that the President’s authority is at its lowest when “incompatible with the express or implied will of Congress,” but at its peak when the President acts consistent with the express or implied will of Congress).

⁹*Beyond Gridlock: How White House Action on Gun Violence Can Save Lives*, Everytown for Gun Safety (2015), <http://everytownresearch.org/reports/beyond-gridlock/>.

¹⁰See *United States v. Hayes*, 482 F.3d 749 (2009); *United States v. Castleman*, 572 U.S. ____ (2014).

¹¹See 18 U.S.C. § 2266 (2006).

Signed,

Elise Boddie
Associate Professor of Law, Rutgers Law School—Newark

Rebecca L. Brown
The Rader Family Trustee Chair in Law, USC Gould School of Law

Erwin Chemerinsky
Dean and Distinguished Professor of Law, UC Irvine School of Law

Lee Epstein
Ethan A.H. Shepley Distinguished University Professor, Washington University in St. Louis

Daniel A. Farber
Sho Sato Professor of Law, UC Berkeley School of Law

Barry Friedman
Jacob D. Fuchsberg Professor of Law, New York University School of Law

Jamal Greene
Professor of Law, Columbia Law School

Kent Greenfield
Professor of Law and Dean's Research Scholar, Boston College Law School

Ariela Gross
John B. and Alice R. Sharp Professor of Law and History, USC Gould School of Law

Mark R. Killenbeck
Wylie H. Davis Distinguished Professor, University of Arkansas School of Law

Carlton F.W. Larson
Professor of Law, UC Davis School of Law

Sanford V. Levinson
W. St. John Garwood and W. St. John Garwood, Jr., Centennial Chair, University of Texas

William G. Merkel
Associate Professor of Law, Charleston School of Law

Gillian Metzger
Stanley H. Fuld Professor of Law and Faculty Director, Center for Constitutional Governance, Columbia Law School

Alan B. Morrison
Lerner Family Associate Dean for Public Interest & Public Service Law, George Washington Law School

Gene Nichol
Boyd Tinsley Distinguished Professor, UNC School of Law

Allen Rostron
Associate Dean for Students and the William R. Jacques Constitutional Law Scholar and Professor of Law, UMKC School of Law

Lawrence Rosenthal
Professor of Law, Chapman University School of Law

Theodore W. Ruger
Dean and Bernard G. Segal Professor of Law, University of Pennsylvania Law School

Kate Shaw
Assistant Professor of Law, Benjamin N. Cardozo School of Law

Neil S. Siegel
David W. Ickel Professor of Law and Professor of Political Science, Duke Law School

Geoffrey R. Stone
Edward H. Levi Distinguished Service Professor of Law, The University of Chicago

Keith Werhan
Ashton Phelps Chair in Constitutional Law, Tulane Law School

Adam Winkler
Professor of Law, UCLA School of Law.

University affiliation provided for identification purposes only.

PREPARED STATEMENT OF THE MONTEREY BAY AQUARIUM

MARCH 24, 2016.

To: Subcommittee on Commerce, Justice, Science, and Related Agencies

Re: NOAA Marine Debris and Education Programs

HON. Richard Shelby, *Chairman*
Subcommittee on Commerce, Justice, Science, and Related Agencies
U.S. Senate Committee on Appropriations

HON. Barbara Mikulski, *Vice Chairwoman*
Subcommittee on Commerce, Justice, Science, and Related Agencies
U.S. Senate Committee on Appropriations

DEAR CHAIRMAN SHELBY AND VICE CHAIRWOMAN MIKULSKI: On behalf of the Monterey Bay Aquarium, I am writing to express our strong support for the Marine Debris Program at the National Oceanic and Atmospheric Administration (NOAA). We respectfully request that you make it a funding priority to include \$8,000,000 for the NOAA Marine Debris Program in the Fiscal Year 2017 Commerce, Justice, Science, and Related Agencies (CJS) appropriations bill.

Our ocean is at increasing risk from growing levels of plastic pollution. Studies estimate that an average of 8 million metric tons of plastic enter the global ocean each year. Unless we curb the flow, scientists estimate that there could be 1 ton of plastic for every 3 tons of fish in the ocean by 2025, posing a risk to water quality, wildlife and human health. Ocean plastic pollution is an issue that is especially relevant to our millions of visitors—and to Californians in general, many of whom have taken action to clean up local beaches and reduce the use of plastic bags in grocery stores.

For these reasons, we support strengthening the NOAA Marine Debris Program, which offers competitive grants for aquariums and others to work with Federal, State, and local partners on marine debris education and reduction projects. Monterey Bay Aquarium has received \$52,306 from this program for our Ocean Plastic Pollution Summit for Teachers. Over 100 pre-K to 12th grade teachers from throughout California have participated in the Summit and follow-up activities, learning how to use the issue of ocean plastic pollution to engage their students in marine conservation and science.

We also want to join the Association for Zoos and Aquariums in urging your support for three additional NOAA programs. Specifically, we request that you include \$8,000,000 for the Environmental Literacy Grants Program, \$12,000,000 for the Bay, Watershed, Education and Training Program, and \$4,000,000 for the John H. Prescott Marine Mammal Rescue Assistance Grant Program in the fiscal year 2017 CJS bill.

Thank you for your ongoing leadership in enhancing ocean health nationwide.

Sincerely,

AIMEE DAVID,
 Ocean Conservation Policy Director.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF DRUG COURT
 PROFESSIONALS

To Chairman Shelby, Ranking Member Mikulski, and distinguished members of the subcommittee, I am honored to have the opportunity to submit my testimony and respectfully request my statement be entered into the record.

As we as a Nation look for models of criminal justice reform, we need to look no further than Drug Courts and Veterans Treatment Courts. They are evidence-based criminal justice reform in action that have successfully reduced crime, saved billions of tax dollars, and transformed the lives of over 1.25 million citizens for decades.

I ask for you to support criminal justice reform in action by ensuring \$50 million for the Drug Court Discretionary Grant Program and \$10 million for Veterans Treatment Courts at the Department of Justice, Office of Justice Programs in fiscal year 2017.

In my home State of Alabama, we have seen firsthand the impact Drug Courts can have on substance abuse and crime. Thus, earlier this month, 28 Drug Court Judges throughout the State signed a letter to Senator Shelby urging for funding for these life-saving programs. I have included a copy of the letter in my testimony.

For far too long, we attempted to incarcerate our way out of an epidemic of substance abuse and crime instead of addressing the core issue of addiction. Our first Drug Court in Alabama launched in 1993, and since then, another 116 have opened their doors. As a Chief Justice, I felt I had an obligation to ensure that justice in my State was meted out as effectively, efficiently and with the greatest results on public safety as possible. This is the reason I pushed so ardently for the establishment of Drug Courts. And I am not alone. The Conference of Chief Justices, an organization of which I am proud to have been a member, represents the highest State judicial officers in the Nation. The Conference has called Drug Courts “the most effective strategy for reducing drug abuse and criminal recidivism among criminal offenders.” As former Chairman of the Conference of Chief Justices, Conference of State Court Administrators Criminal Justice and Evidenced-Based Sentencing Committee, I can assure you that the Chief Justices and State Court Administrators are adamant in their support of data-driven solutions to drug-induced crime. The answer is Drug Courts.

And the U.S. Government Accountability Office agrees. In 2011, it released its fourth report on Drug Courts, concluding once again that Drug Courts reduce recidivism and cut crime. The report confirmed that Drug Courts reduce crime by up to 58 percent.

There is no questioning the explosive impact that substance abuse has had on our criminal justice system. As a Nation, we annually spend a staggering \$60 billion on corrections, an investment that has done little to stem the tide of crime or substance abuse. Half of the Nation’s prison population is clinically addicted to drugs or alcohol. Upon their release, nearly all will relapse into substance abuse, and as many as 80 percent will commit a new crime (typically drug-related). In this revolving door pattern, it is easy to see why spending on corrections remains exorbitant. Given the abysmal outcomes of incarceration on addictive behavior, there’s absolutely no justification for State governments to continue to waste tax dollars feeding a situation where generational recidivism is becoming the norm, and parents, children and grandparents may find themselves locked up together. This is simply an appalling fiscal policy. But there is a solution.

From serving our veterans addicted to prescription drugs to aiding countless methamphetamine addicts; from helping juveniles addicted to designer drugs to parents facing the loss of their children to addiction; from rural towns to our largest cities; from an alternative to incarceration to re-entry into the community, Drug Courts save vast resources and tax dollars by reducing drug abuse, crime and recidivism at a level unmatched by any other program in our Nation’s history.

However, we have a long way to go. The Department of Justice has reported that 1.2 million offenders would be eligible for Drug Court if one were made available to them. To be smart on crime, we must expand the existing Drug Court system to ensure every eligible offender receives a chance at these life-saving programs.

Now more than ever, we must focus on proven programs that guarantee financial returns and measurable success. There is simply no better investment this Congress can make than in Drug Courts. Drug Courts have been proven through rigorous scientific research to decrease crime, save taxpayer dollars, rehabilitate offenders, and restore families and communities. No other criminal justice or behavioral healthcare program has a comparable record of success or such strong bipartisan support in Congress. One would be hard-pressed to identify another Federal program that has been as avidly endorsed and sustained by States and counties. Supported by policy analysts on both ends of the political spectrum, Drug Courts offer a roadmap for a practical, evidence-based and fiscally conservative drug policy that works.

I strongly urge an investment of \$50 million for the Drug Court Discretionary Grant Program and \$10 million for Veterans Treatment Courts at DOJ. Adequate funding for Drug Courts and Veterans Treatment Courts will ultimately save countless lives and tax dollars in not only Alabama, but every State in this great Nation.

[This statement was submitted by former Chief Justice of Alabama Sue Bell Cobb.]

Joint Letter from Alabama Drug Court Judges

Hon. Richard Shelby
United States Senate
304 Russell Office Building
Washington, DC 20510-0103

Dear Senator Shelby:

Please accept our sincere gratitude for all that you did to support the funding of Drug Courts and Veterans Treatment Courts in the Department of Justice budget during this past session. We are grateful that you are in such an important leadership position that is so critical to Drug Court funding. Alabama has 110 Drug Courts, Veterans Treatment Courts, and Mental Health Courts, all of which benefit from your efforts to ensure increased funding for Drug and Veterans Treatment Courts.

For over 25 years, Drug Courts, and now more recently Veterans Treatment Courts, have successfully reduced crime, saved billions of tax dollars nationwide, and transformed the lives of over 1.25 million people. As you begin to consider the Fiscal Year 2017 appropriation, we ask for your support to ensure continued funding of this essential effort to keep Alabamians and Americans safe.

Alabama has previously been recognized for the largest increase in the number of model Drug Courts. Why? We as judges realize that Drug Courts work, and we are willing to spend significant time and energy to work with local Drug Court teams to change people's lives. Alabama has one of the most overcrowded and least-funded prison systems in the nation, and, like other states, has been ineffective in reducing recidivism. Consequently, Alabama's drug-addicted offenders, their families, and future employers receive an even greater benefit from the accountability—such as random drug testing and increased supervision—and appropriate consequences imposed by the 110 Drug Courts throughout our state.

We urge you to fund \$50 million for Drug Courts and \$10 million for Veterans Treatment Courts at the Department of Justice.

Sincerely yours,

Circuit and District Judges of Alabama

J. David Jorda J. David Jorda Escambia
Signature Print Name District/County

FRANK STEPHAN FRANK STEPHAN DAVE
Signature Print Name District/County

Scott R. Taylor Scott R. Taylor Baldwin
Signature Print Name District/County

R.E. Armstrong R.E. Armstrong Dallas Co. District Court
Signature Print Name District/County










BURT SMITH BURT SMITH Circuit Judge 3rd Circuit
Signature Print Name District/County

Henry Alfred Henry Alfred District Judge Walker Co.
Signature Print Name District/County

Gil Self Gil SELF Circuit Judge
Signature Print Name District/County Lauderdale

Deborah H. Biggers Deborah H. Biggers Macon District Judge
Signature Print Name District/County

John Dobson John Dobson Blount Co.
Signature Print Name District/County

	Kim J Chaney	President AIA Assoc of Drug Court Prof
Signature	Print Name	District/County
	Tim Jolley	President Elect AADCP
Signature	Print Name	District/County
	Michael J. Bellamy	Russell
Signature	Print Name	District/County
	Michelle Thomason	Baldwin
Signature	Print Name	District/County
	JAMES E. MALONE	CLAY COOSA
Signature	Print Name	District/County
	Brian Howell	CALHOUN CLERMONT
Signature	Print Name	District/County
	Joe F. Nabors, Jr.	Etowah
Signature	Print Name	District/County
	Glenn Thompson	Morgan
Signature	Print Name	District/County
	J. Michael Joiner	Al. Court of Crim. App.
Signature	Print Name	District/County

Mitchell S. Floyd Mitchell S. Floyd 27th / Marshall Co.
 Signature Print Name District/County

Schuyler Richardson Schuyler Richardson Madison (23rd)
 Signature Print Name District/County

Robert L. Minor Robert L. Minor St. Clair
 Signature Print Name District/County

Philip K. Seay Philip K. Seay St. Clair (30th)
 Signature Print Name District/County

Robert Wilters Robert Wilters Baldwin (28th) retired
 Signature Print Name District/County

Bradley Byrne BRADLEY BYRNE Escambia
 Signature Print Name District/County

Laure Phillips Laure Phillips Calhoun
 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

Jim Riley Tim RILEY Circuit Marshall Co
 Signature Print Name District/County

William H. Bostick III William H. Bostick III Circuit - Shelby
 Signature Print Name District/County

Corey B. Moore Corey B. Moore Circuit/Kelby
 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

 Signature Print Name District/County

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF MARINE LABORATORIES

The National Association of Marine Laboratories (NAML) is a nonprofit organization representing the ocean, coastal and Great Lakes interests of member laboratories that employ thousands of scientists, engineers and professionals nationwide. NAML labs conduct high quality research which is used to improve decisionmaking on important issues related to our coasts, oceans, and Great Lakes. In setting NAML's priorities, NAML recognizes the importance of the Federal investment in the geosciences and related disciplines as contributory factors to the Nation's economic and national security, and public safety. Specifically, NAML supports:

- Enhancing research, education and public engagement at marine labs for the continued development of the Nation's workforce, expansion of opportunities for active learning and collaborative research, and improved public engagement;
- Increasing support for competitive, merit-based ocean, coastal, and Great Lakes research and education from relevant Federal agencies to address research priorities and agency mission priorities; and
- Promoting a network of advanced connectivity among Federal and non-Federal laboratories that strengthens the Nation's research and education enterprise—including advanced cyber infrastructure, integration of environmental observing systems, and the co-location of Federal scientists and infrastructure at NAML facilities.

Six economic sectors of the U.S. economy depend on the oceans, coasts, and Great Lakes, which provide an important and resilient part of the national economy: including marine construction; living resources; offshore mineral extraction; ship and boat building; tourism and recreation; and marine transportation. According to NOAA, in 2012, the ocean economy accounted for 147,000 business establishments, 2.9 million employees, \$113 billion in wages, and \$343 billion in gross domestic product. In 2012, the ocean economy's contribution to gross domestic product grew by 10.5 percent—more than four times as fast as the U.S. economy as a whole (which grew by 2.5 percent). During the same year, employment in the ocean economy increased 3.8 percent (adding 108,000 jobs). This was twice the national average employment growth of 1.8 percent.

Programs such as NOAA's Sea Grant program, NSF's geoscience and biological sciences research programs including the Field Stations and Marine Laboratories program, NOAA's National Estuarine Research Reserve System, ocean observing and education programs at NSF and NOAA, and other agencies' national estuaries and other water-related programs all contribute to either the continued economic development of our coastal economies and/or the improved management of coastal and marine natural resources.

RESEARCH AND EDUCATION: COMMITMENT TO INNOVATION

Innovation in the form of new goods, services, or processes builds new knowledge and technology, contributes to national competitiveness, improves living standards, and furthers social welfare. Research and development is a major driver of innovation. R&D expenditures indicate the priority given to advancing science and technology relative to other national goals.

According to the latest data, the U.S. science and engineering (S&E) enterprise still leads the world. The United States invests the most in research and development (R&D), produces the most advanced degrees in science and engineering and high-impact scientific publications, and remains the largest provider of information, financial, and business services. However, Southeast, South, and East Asia continue to rapidly ascend in many aspects of S&E. The region now accounts for 40 percent of global R&D, with China as the stand-out as it continues to strengthen its global S&E capacity. The National Science Board's (NSB) *Science and Engineering Indicators 2016 (Indicators)* report highlights that China, South Korea and India are investing heavily in R&D and in developing a well-educated workforce skilled in science and engineering. *Indicators 2016* makes it clear that while the United States continues to lead in a variety of metrics, it exists in an increasingly multi-polar world for S&E that revolves around the creation and use of knowledge and technology.

At the same time that China and other Asian nations have continued to increase their R&D investments, the United States' commitment to Federal Government-funded R&D has declined. Federal obligations for the total of R&D and R&D plant were \$129 billion in fiscal year 2008, \$145 billion in fiscal year 2009, and \$147 billion in fiscal year 2010. But the years thereafter have been mostly marked by funding declines: fiscal years 2011 and 2012 were down \$6–\$7 billion from the fiscal year 2010 peak and then declined further to \$127 billion in fiscal year 2013. In fiscal year 2014, the total increased to \$131 billion. Nonetheless, the drop from the fiscal year 2010 level to that in fiscal year 2014 is a current dollar decline of 11 percent—and when inflation is factored in, it is steeper still, at 17 percent. Since the Great Recession, substantial, real R&D growth annually—ahead of the pace of U.S. GDP—has not returned. Inflation-adjusted growth in total U.S. R&D averaged only 0.8 percent annually over the 2008–2013 period, behind the 1.2 percent annual average for U.S. GDP.

The Nation is faced with a widening gap between the actual level of Federal funding for research and education and what the investment needs to be if the United States is to remain the world's innovation leader. The Nation needs to increase its

investments in research and education to develop the ideas, the people, and the innovations that power the Nation's economy, create jobs, improve health, and strengthen our national security, ensuring the United States maintains its role as a global leader.

NATIONAL SCIENCE FOUNDATION

NSF's annual budget represents 25 percent of the total Federal budget for basic research conducted at U.S. colleges and universities, and this share increases to 60 percent when medical research is excluded. In many fields NSF is the primary source of Federal academic support. For example, NSF provides 61 percent of all Federal support for basic research at academic institutions in the environmental sciences and 66 percent in biology (excluding the biomedical sciences). NSF provides the broadest base of support, including funding for research in physical, biological, and chemical oceanography and marine geology and geophysics, and the development, implementation, and operational support for ocean, coastal, and Great Lakes research infrastructure.

NAML strongly supports robust funding for NSF particularly in the geo and biological sciences. Since fiscal year 2011, despite an increase of nearly 10 percent to the NSF research and related account, funding for the geosciences has remained nearly flat. This has exacerbated the budgetary pressures on core research programs and the support for infrastructure throughout the directorate and as specifically addressed in the *Decadal Study on Ocean Sciences (DSOS)*. The fiscal year 2017 NSF budget request contains a proposed 6 percent increase for both the geosciences and the biological sciences, with a 6.5 percent increase for NSF's entire research budget. NAML strongly supports this requested investment in research and education through NSF. Research emphases at NSF should reflect the priority science questions contained in *DSOS*. NSF's support for ocean research infrastructure should be realigned with these research priorities. NAML is particularly supportive of the creation of new research networks that connect NAML laboratories and terrestrial field stations in ways that would enhance other ecosystem networks (e.g., LTERs) supported by NSF. NAML embraces this and other recommendations, which stem, in part, from *Enhancing the Value and Sustainability of Field Stations and Marine Laboratories in the 21st Century*.

NAML notes the increasing share of NSF's division of ocean science's funding to support facilities and infrastructure, is approaching 50 percent of the total division's budget. This is up substantially from the historical 40 percent share. Advanced infrastructure, while expensive, is essential for the field to move forward. However, the support for infrastructure must be balanced with the need to support individual investigators—particularly young investigators—with the resources needed for high quality research activities. The *DSOS* considers marine laboratories and field stations *critical* for the research priorities related to coastal and estuarine oceans, biodiversity and marine ecosystems, and marine food webs. NAML endorses the recommendations of *DSOS* including:

- To sustain a robust ocean science community, holistic fiscal planning is necessary to maintain a balance of investments between core research programs and infrastructure. To maintain a resolute focus on sustaining core research programs during flat or declining budgets, NSF should strive to control operating costs of its major infrastructure programs over the next 5 years.
- NSF should reconsider whether the current regional class research vessels (RCRV) design is aligned with scientific needs and is cost effective in terms of long-term O&M pressures, and after doing so, should act accordingly.
- NSF should expand its partnership capabilities with other Federal agencies and international partners, particularly with regard to shared community research priorities (e.g., climate change, ocean acidification, hypoxia, HABs, etc.).

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

One of NOAA's key priorities is providing information and services to make communities more resilient to coastal hazards. America's coastal communities and shorelines are facing escalating risks from changes in storm intensity, precipitation, flooding, rising sea levels, and ocean ecosystems, as well as from earthquakes and tsunamis that can result in dramatic human and economic losses. Increasing population density along the coast will further intensify pressures on ecologically and economically important areas, and put more people at risk. Rising sea level can further escalate the costs and risks of inundation events. A study by the National Institute of Building Sciences on Federal hazard mitigation grants estimated that \$1 spent on hazard mitigation potentially leads to avoidance of \$4 in disaster relief costs and lost Federal tax revenue. Smartly investing in resilience strategies and

programs will reduce the economic impacts of these hazards and improve national economic security. Similarly, the Great Lakes region boasts a massive geographic footprint, and is a major driver of the North American economy. With economic output of \$4.7 trillion in 2011, the region accounts for 28 percent of combined Canadian and U.S. economic activity. Continued investments will be required to modernize the Nation's critical infrastructure in the very near future. This represents an opportunity to incorporate green infrastructure materials and strategies into communication, transportation, water supply and other critical systems.

Continued support for NOAA's coastal programs will be necessary to ensure that these systems are resilient to extreme weather, natural disasters and other hazards. Comprehensive resilience planning will help protect coastal communities and resources from the effects of hazards and land-based pollution to vulnerable ecosystems by addressing competing uses, improving water quality and fostering integrated management for sustainable uses. Geospatial services will support communities, navigation and economic efficiency with accurate, useful characterizations, charts and maps, and assessment and decision support tools. NOAA programs and services will help build capacity among coastal decision makers to adaptively manage coastal communities and ecosystems with the best natural and social science available. Resilient coastal communities and economies cannot be achieved without strong partnerships. NOAA should increase its outreach to and usage of NAML laboratories by increasing support of *existing programs* before embarking on the establishment of new, potentially duplicative, programs.

NAML strongly supports recommendations that call for priority support for NOAA extramural programs. Extramural funding enables NOAA to leverage its R&D and operational investments with the resources of the Nation's leading university scientists resulting in greater and faster scientific advances at lower costs. A predictable and reliable partnership with the extramural research community is critical to NOAA's long-term success. The NOAA budget request for fiscal year 2017 includes requested increases for the Office of Coastal Management (OCM), the Coastal Science and Assessment, including the Competitive Research program that supports harmful algal blooms, hypoxia, and the coastal resilience management grants program which NAML is pleased to support. NAML is concerned, however, with proposed reductions in oceans, coastal, and Great Lakes research—including the National Sea Grant College Program, the Ocean, Coastal, and Great Lakes Cooperative Institutes and Ocean Exploration and Research.

As available resources become scarcer and major program reorganizations may be considered, NOAA should expand its efforts to co-locate agency research staff and infrastructure at non-Federal marine laboratories. Such actions will not only result in significant cost savings, but also will achieve a greater return for its investment and increase scientific collaborations and productivity. NAML also continues to express concern with NOAA proposals contained in appropriation language requests that would enable NOAA to compete with non-Federal and private entities for private sector support (See proposed Sec 109 on p. 219 of the *Appendix to the Budget of the U.S. Government* for Fiscal Year 2017). NOAA should adhere to its public-private partnership policy, which recognizes the distinct, yet cooperative, roles of the public and private sectors as it relates to environmental information.

EDUCATION, DIVERSITY AND AN OCEAN LITERATE AMERICA

The United States continues to be at risk with respect to student achievement in science, technology, engineering and math among industrialized nations, as well as, emerging industrializing nations. As reported in *Indicators: the Program for International Student Assessment* data show that the U.S. average mathematics and science literacy scores are below the average scores for all developed countries, and the United States has substantially fewer high scores and more low scores than other developed countries. U.S. students' average mathematics score of 481 in 2012 was lower than the average score for all developed countries, 501. The average science literacy score for U.S. students in 2012 was 497, lower than the average science score of 511 for all developed countries.

NAML continues to believe it is critically important that we improve ocean literacy and workforce development among all sectors of our nation. Place-based networks such as NAML offer unique opportunities to provide hands-on training in diverse field settings with advanced sampling and sensing technologies. The importance of marine laboratories in support of coastal States' environmental literacy plans is essential in developing a literate public. Investment is needed today in coastal, ocean and Great Lakes education programs at NAML laboratories that support formal and informal learning at all age levels, in all disciplines and for all Americans. NAML supports the administration's proposed \$7 billion investment in

STEM education across the Federal Government—with its expansion of access to rigorous STEM courses, improving STEM teaching and support for active learning, and expansion of opportunities for all students in STEM education. NAML laboratories believe the mission agencies have a role in helping to educate and train the workforce they will need in the future to carry out their missions. Therefore, NAML strongly objects the proposed budget reductions to NOAA's education programs. NAML also continues to strongly support partnerships with Federal agencies to address the ocean education needs of the Nation.

Thank you for the opportunity to submit this information for the fiscal year 2017 appropriations process.

PREPARED STATEMENT OF THE NATIONAL CHILDREN'S ALLIANCE

Chairman Shelby, Vice-Chair Mikulski and members of the subcommittee:

Thank you for the opportunity to provide testimony regarding the funding priorities of the Senate Appropriations Subcommittee on Commerce, Justice, Science, and Related Agencies.

National Children's Alliance is the member-accrediting body for almost 800 Children's Advocacy Centers (CACs) throughout the United States. We empower local communities to respond to child abuse by providing grants for the start-up and development of CACs, which coordinate a multidisciplinary team for the investigation, prosecution, and treatment of child abuse. Funded through the Victims of Child Abuse Act, these critical centers served more than 311,000 child victims of abuse throughout the United States in 2015; a majority of whom were victims of sexual abuse. In addition, CACs provided more than 1.8 million individuals with child abuse prevention education. As you begin drafting your subcommittee's fiscal year 2017 appropriations bill, we respectfully urge you to again fully fund the Victims of Child Abuse Act program at its current authorized level of \$20 million in the Department of Justice's Office of Justice Programs, Juvenile Justice Account.

CHILD SEXUAL ABUSE

Children of every gender, age, ethnicity, socioeconomic status, and family structure are at risk for sexual abuse. Child sexual abuse is a crime perpetuated by silence and secrecy. Isolation, whether within a family or by community, adds significant risk for sexual abuse. Children who live in rural areas, for example, are almost 2 times more likely to be identified as victims of child sexual abuse.¹

Understanding the scope of the problem also requires understanding that child sexual abuse exists on a continuum of deviant and harmful behavior by the perpetrator that begins on one end with secretive and furtive victimization, slides into amateur or professional photo-documentation of that abuse primarily for the sexual gratification of the offender, may move toward commercialization or public sharing of those images with other offenders, and on the far end of that continuum may include prostituting or trafficking the child. And, of course, a child may experience one, all, or some combination of these forms of child sexual abuse.

RESPONDING TO CHILD ABUSE AND THE ROLE OF CHILDREN'S ADVOCACY CENTERS

Children's Advocacy Centers play a key role in the investigation and prosecution of child abuse cases, and in the healing of victims. CACs are child-friendly facilities in which a multidisciplinary team comprised of law enforcement, child protective services, prosecutors, victim advocates, medical practitioners, and mental health professionals convenes and coordinates its efforts to investigate and prosecute child abuse cases while protecting children and providing needed treatment to victims. Across the United States, there are almost 800 Children's Advocacy Centers, which together served more than 311,000 child victims of abuse in 2015 alone.

The majority of these Children's Advocacy Centers were founded after the passage of the Victims of Child Abuse Act in 1990; which was an important part of Congress' efforts to improve the investigation, prosecution, and treatment of child abuse. Monies appropriated by Congress, each year since 1992, have improved the response within existing Centers, while aiding the development of new Children's Advocacy Centers in areas previously underserved. This much appreciated Federal investment has been used to leverage State funding, private foundations, and local community donors.

This investment has yielded significant returns. The model of comprehensive care for child abuse victims has significant evidence of its efficacy. Independent research

¹ Sedlack, et al 2010.

has found that child abuse cases coordinated through a Children's Advocacy Center have:

- a shortened length of time to disposition;²
- increased rates of prosecution;³
- more satisfaction on the part of child victims and their non-offending caregivers;⁴
- higher levels of service provision for medical evaluations; and
- increased referrals for mental health treatment than non-CAC cases.⁵

In short, the multidisciplinary team approach has shown that it is possible to reduce trauma to child victims of abuse while improving the legal outcome of cases and holding offenders accountable. And, at a time when financial resources are limited at every level of government, Children's Advocacy Centers have been demonstrated to save on average over \$1,000 per child abuse case compared to non-CAC communities.⁶

THE VICTIMS OF CHILD ABUSE ACT

Sadly, this effective and efficient response is not available to every child sexual abuse victim in the United States. Currently, abused children in 2,104 counties in the United States have access to the services of a Children's Advocacy Center. This also means that abused children in more than 1,000 counties have no access to this comprehensive care. Indeed, those areas that are underserved are the most rural, most geographically isolated, and the most resource-poor parts of our country. But, these children are not simply Alabama's children, or Maryland's children, or Mississippi's children: they are America's children. Indeed, the Victims of Child Abuse Act was conceived by Congress on a bipartisan basis to create and sustain a support system for every law enforcement officer and prosecutor combating child abuse across the Nation, while also ensuring a network of care for the victims. And in 2014, Congress reaffirmed its overwhelming support of federally funding the Victims of Child Abuse Act by unanimously reauthorizing the statute.

Children's Advocacy Centers are also uniquely equipped to be the first point of contact for victims of child trafficking. Recent research indicates that "one of the major ways that officers [reported] compromising previous potential human trafficking investigations was through poor interviewing of victims."⁷ In that same report, researchers noted that "human trafficking victims who suffer from trauma may require multiple interviews before they can accurately discuss the victimization they experience."⁸ For more than 25 years, Children's Advocacy Centers have proven their forensic interviewing techniques, and trauma-focused intervention services, help victims through the process. And, more recently, many of our CACs have begun developing programs specifically aimed at providing services for trafficking victims, funded in part with Victims of Child Abuse Act monies.

Beyond intervention services for victims and their families, Children's Advocacy Centers also provide training to their multidisciplinary team members. Last year, National Children's Alliance, and their Children's Advocacy Center members and partners, provided training to more than 67,000 child abuse professionals. Investigating, prosecuting, and treating child abuse is complex and specialized work that requires highly trained professionals and access to continuing education for those professionals. Because 98 percent of child abuse investigations and prosecutions occur at the State/local level, training resources using Federal funds should likewise be driven down to this level, and the Victims of Child Abuse Act funding supports this vital training.

² Walsh, W.A., Lippert, T., Cross, T. P., Maurice, D. M. & Davison, K. S. (2008). How long to prosecute child sexual abuse for community using a children's advocacy center and two comparison communities? *Child Maltreatment*, 13(1), 3–13.

³ Smith, D. W., Witte, T. H., & Fricker-Elhai, A. E. (2006). Service outcomes in physical and sexual abuse cases: A comparison of child advocacy center-based and standard services. *Child Maltreatment*, 11(4), 354–60.

⁴ Lalayants, M., & Epstein, I. (2005). Evaluating multidisciplinary child abuse and neglect teams: a research agenda. *Child Welfare*, 84(4), 433–58.

⁵ Smith et al 2006.

⁶ Formby, J., Shadoin, A. L., Shao, L., Magnuson, S. N., & Overman, L. B. (2006). Cost-benefit Analysis of community responses to child maltreatment: A comparison of communities with and without Child Advocacy Centers. (Research Report No. 06–3). Huntsville, Alabama: National Children's Advocacy Center.

⁷ Farrell A., McDevitt J., Pfeffer R., Fahy S., Owens C., Dank M., Adams W. (2012). Identifying Challenges to Improve the Investigation and Prosecution of State and Local Human Trafficking Cases. Northeastern University's Institute on Race and Justice and the Urban Institute's Justice Policy Center, pp 96–97.

⁸ Ibid.

While this network has been deeply threatened over the past several years when funding for the Victims of Child Abuse Act was either eliminated or cut in half within the President's Department of Justice budgets, Congress's continued support to ignore the request and restore these critical funds ensures victim services for those in need.

We understand that the past few budget years, and current budget climate, have forced increasingly difficult choices on Congress and the administration and are deeply grateful the Victims of Child Abuse Act continues to receive full funding. This modest Federal funding investment leverages Children's Advocacy Centers as a vital resource to law enforcement and prosecutors, ensuring that our communities are safer and offenders are held accountable.

SERVICES FOR CHILD SEXUAL ABUSE VICTIMS

While child abuse investigations are important to the safety of victims and the accountability of offenders, we must also help victims learn to cope with the trauma. Child sexual abuse has well-documented life-long effects. Victims of child sexual abuse are more likely than their non-abused counterparts to become pregnant as teens, to drop out of high school, to abuse substances, to engage in self-destructive and risk-taking behavior, and to experience anxiety and depression. As adults, these individuals have increased morbidity and mortality, suffering from a host of physical and mental ailments at higher rates than their non-abused peers.⁹ Moreover, their own children are more likely to suffer sexual abuse during the course of their lifetimes than other children. This is truly the saddest possible cycle of abuse.¹⁰

This host of maladies is the result of the trauma caused by abuse. Child abuse victims experience rates of trauma symptoms (hyperarousal, fear, sleep disturbances, anxiety, and depression) at rates verging on those experienced by war veterans. Fortunately, much has been learned over the past 15 years about successfully treating trauma in children. Every child who has been the victim of abuse deserves to be assessed to see if they would benefit from mental health treatment, and if so, to have it provided to them promptly.

Abused children served within Children's Advocacy Centers have access to such trauma-focused, evidence-supported mental health treatment. For the more than 311,000 children served within Children's Advocacy Centers last year, there is no doubt that the care they received was improved, and suffering they experienced was reduced for having had access to such treatment.

IN SUMMARY

Child sexual abuse is a far too common experience for America's children. And child sexual abuse is preventable. More than 2 decades of research reflects the effectiveness of child sexual abuse prevention and body safety information for children. One of the most effective prevention and response systems is available through Children's Advocacy Centers. There are close to 800 such centers throughout the United States that have been proven to be cost-effective and efficient in coordinating the investigation, prosecution, and protection of children while ensuring that child victims of abuse receive effective treatment. While the investigation and prosecution of child abuse cases is important in holding offenders accountable, this alone is not sufficient to help victims heal. Victims require trauma-focused, evidence-supported mental health treatment in order to heal.

We urge your strong support for again funding the Victims of Child Abuse Act at \$20 million for fiscal year 2017 to provide valuable assistance to law enforcement, keep communities safer, and strengthen justice and healing for victims. Thank you.

PREPARED STATEMENT OF THE NATIONAL ESTUARINE RESEARCH RESERVE ASSOCIATION

Chairman and members of the subcommittee, my name is Cory Riley and I am the Manager of the Great Bay National Estuarine Research Reserve in New Hampshire, administered by the new Hampshire Fish and Game Department. I submit this testimony in my capacity as President of the National Estuarine Research Reserve Association (NERRA). NERRA is a not-for-profit scientific and educational or-

⁹Dube S.R., Anda R.F., Whitfield C.L., Brown D.W., Felitti V.J., Dong M., Giles W.H. (2005). Long-term consequences of childhood sexual abuse by gender of victim. *American Journal of Preventive Medicine*, 28 (5), pp. 430-438.

¹⁰Penelope K. Trickett, Jennie G. Noll and Frank W. Putnam (2011). The impact of sexual abuse on female development: Lessons from a multigenerational, longitudinal research study. *Development and Psychopathology*, 23, pp 453-476 doi:10.1017/S0954579411000174.

ganization dedicated to the protection, understanding, and science-based management of our Nation's estuaries and coasts.

Thank you on behalf of these special places and all of the communities they support. We appreciate the investment Congress has made in the National Estuarine Research Reserve System over the past 42 years. Because of your support, this system has grown into a network of 28 protected places where more than 36,000 people use research reserves to address critical challenges like how to balance conservation with economic growth, plan for changing sea levels and extreme storms, protect nursery habitat that supports fishing, and prepare our children to be wise stewards of these precious resources in the future.

A national program with local relevance

Twenty-eight National Estuarine Research Reserves have been designated in 22 States and Puerto Rico, protecting over 1.3 million acres of land and water in perpetuity. This unique State-Federal partnership brings the scientific expertise and financial investment of NOAA into coastal communities across the country. Investments in the research reserves support locally implemented science-based coastal resource management, research, and education programs. As a network, the sites study important estuarine trends, and conduct science-based education and outreach to meet national priorities as mandated by Congress in the Coastal Zone Management Act (CZMA) of 1972.

The NERRS program has grown as States have increasingly recognized the value of the program. The addition of new reserves has provided more science, training, and education resources that can be applied nationally. However, the cost associated with operating the NERR program nationally has increased given the recent addition of two reserves (Texas and Wisconsin) with a third (Hawaii) entering the system in fiscal year 2017, and a fourth (Connecticut) engaged in the designation process now. NERRA would like to expand the network while continuing high quality programs at each reserve and maintaining the national infrastructure needed to monitor each site. To do this, the system will need more funding.

NERRA encourages investing \$900,000 above the administration request

For fiscal year 2017, NERRA strongly recommends the following reserve system programs and funding levels within the National Oceanic and Atmospheric Administration (NOAA):

NERRS Operations	\$23.9 million
NERRS Procurement, Acquisition, and Construction (PAC)	\$1.7 million

The administration's fiscal year 2017 request for the NERRS is \$23 million; leaving a \$900 thousand dollar gap between the administration request and NERRA's request. After reviewing the detailed NOAA budget request sent to the Congress, we believe that the States are inadequately supported to implement this national program and compromised in their ability to fulfill the vision of Congress in its creation of the NERRS program. NERRA is deeply concerned with the administration's funding levels that we believe are inconsistent with key tenants of NOAA's own strategic plan—specifically, enhancing community and economic resiliency and strengthening science in support of coastal resource management.

The Administration's fiscal year 2017 requested funding level will diminish the NERRS's capacity to:

1. *Maintain and improve coastal intelligence:* Reserves provide environmental observing and water quality data and products based on the most comprehensive national, long-term data set on estuarine conditions. System-wide monitoring and data networks provide immediate and long-term information to understand harmful algal blooms, assess water quality, identify habitat impacts from changing sea levels, aid in weather forecasting, and improve response to storm surge. Hundreds of entities use the NERRS water quality and weather data, including; State water quality control programs, county health departments, shellfish growers and fishing industry professionals, the National Weather Service, and insurance companies.
2. *Serve as an early warning center for changes to our coast:* Reserves are working to understand changes in water levels, acidity, salinity and elevation on our coasts. In addition, reserves are sentinels for changes to tidal marshes, mangroves and sea grass beds. These habitats provide a wide range of highly valued ecosystem services such as nursery habitat for commercial and recreational important fish, erosion and flood control, and water quality improvements. Understanding how the coastal conditions are changing in relation to stressors such as storm surge, changes in precipitation, sea level rise, and de-

velopment patterns is critical to understanding the ability of natural coastal habitats to provide food, flood storage, and pollution mitigation.

NERRS provide needed services at a low cost

Coastal dependent communities, businesses and industries rely on research reserve generated information about coastal conditions; local boards and elected officials rely on the reserves to provide relevant information and data related to hazards and sea level rise; and educators rely on reserves to teach students and teachers how to collect, analyze and translate environmental data. Funding of \$23.9 million for the NERRS is the minimal amount needed to provide each reserve with the necessary funding to insure that cuts to the States as well as to existing core programs and services do not occur.

Investments in the NERRS are dollar-smart because funding for the program is matched by the States and leveraged significantly, resulting in an average of more than five other local and State partners contributing to the work at each reserve. In addition, the program significantly benefits from volunteers that are engaged in habitat restoration, citizen science and education which offset operation costs at reserves by donating thousands of hours. Annually, volunteers contribute more than 100,000 hours to the NERRS with an estimated value of over \$2.2 million.

NERRA encourages investment in NERRS PAC funds and BWET grants

The NERRS Procurement, Acquisition, and Construction (PAC) funding is designated for land conservation, through acquisition of priority lands, and essential facilities construction and upgrades. This competitive funding program is matched by State funds and is critical to maintaining the places that host NERR research, education and outreach. These funds have resulted in not only the preservation of critical coastal lands as described above, but also in the increase of construction jobs. For example NERRS creates more than 60 jobs for each \$1 million of Federal construction (PAC) money spent. In addition, NERRS leveraged investments of more than \$115 million to purchase over 30,000 acres of coastal property over the last 12 years.

Within the budget request for NOAA, the administration is again proposing the elimination of funding for the Bay-Watershed Education and Training (B-WET) regional programs—a reduction of \$7.2 million in funding. The rationale provided for program reductions is misleading in stating that NOAA education experiences will continue to be provided by programs including the NERRS. Where States are eligible for B-WET funding, reserves are able to increase their educational capacity by as much as 50 percent. The B-WET regional program funding is money that is spent in addition to the annual NERRS money invested in the education programs, allowing each program to reach more students and teachers in coastal communities. The NERRS educate more than 83,000 children annually. NERRA strongly opposes the cut of B-WET regional programs and any of the other NOAA STEM educational programs.

CONCLUSION

NERRA greatly appreciates the past support the subcommittee has provided. This support is critical to sustain and increase the economic viability of coastal and estuary-based industries.

With NERRA's fiscal year 2017 request of \$23.9 million for the NERRS Operations and \$1.7 million for NERRS PAC, the program will be able to maintain delivery of credible scientific research and translation to the 28 reserves around the country. We urge the subcommittee to support this request, and to restore funding for the B-WET regional programs.

Thank you for the opportunity to present these remarks. On behalf of NERRA, I would be happy to answer questions or provide additional information to the subcommittee.

PREPARED STATEMENT OF THE NATIONAL MARINE SANCTUARY FOUNDATION

Fiscal Year 2017 Appropriations Request

The National Marine Sanctuary Foundation (NMSF) works with Congress and the National Oceanic and Atmospheric Administration (NOAA) to connect fellow citizens to the underwater places that define the American ocean—the National Marine Sanctuary System.

NMSF applauds the subcommittee's continued support for America's national marine sanctuaries. But, we remain concerned that NOAA's Office of National Marine Sanctuaries (ONMS) has not received sufficient appropriations for several budget

cycles. Recognizing the strong and growing public support within communities and the economic growth and job creation benefits provided by sanctuaries, NMSF respectfully requests the subcommittee remedy this situation by appropriating:

- \$55 million to Sanctuaries and Marine Protected Areas, within NOAA's Operations, Research, and Facilities account; and
- \$5.5 million to Marine Sanctuaries Construction, within NOAA's Procurement, Acquisition, and Construction account.

Joining NMSF in this request is a national network of community-based, non-profit organizations that support sites within the sanctuary system. On behalf of their members, the California Marine Sanctuary Foundation (California), Cordell Marine Sanctuary Foundation (California), Farallones Marine Sanctuary Association (California), Friends of Thunder Bay National Marine Sanctuary (Michigan), Gray's Reef National Marine Sanctuary Foundation (Georgia), Hawai'i National Marine Sanctuary Foundation (Hawaii), and Sanctuary Friends Foundation of the Florida Keys (Florida) support funding the National Marine Sanctuary System at these levels.

A Growing Grassroots Movement: Strengthening the National Marine Sanctuary System

The National Marine Sanctuary System consists of 14 sites encompassing over 170,000 square miles of marine and Great Lakes waters from Washington State to the Florida Keys, and from Lake Huron to American Samoa. Sanctuaries protect vibrant ocean ecosystems, conserve essential habitat for endangered and commercially important marine species, and safeguard historical and cultural resources.

The American people have seen the benefits that sanctuaries provide for local communities and our Nation, and they are voicing their support. Communities are coming together to discuss how to protect our ocean, coasts and Great Lakes by strengthening existing sites and nominating and designating new sanctuaries for the first time in 15 years. The expansions of Thunder Bay, Greater Farallones, and Cordell Bank national marine sanctuaries were grounded and driven by broad-based, diverse community support and Congressional leadership. Likewise, recent nominations and designations for new sites are championed by local leaders bringing together their communities.

Just as the Nation is on the verge of celebrating and conserving its maritime resources and heritage, ONMS should receive additional funding to be responsive to the growing grassroots movement for national marine sanctuaries in communities nationwide.

Sanctuaries are Highly-Participatory, Multi-Use, Balanced Ocean Conservation Tools

Communities nationwide benefit from the highly participatory, multi-use, balanced approach offered by national marine sanctuaries. Generations of Americans have grown up, worked jobs, and supported their families on the waters of our national marine sanctuaries. Among all the statutes enacted by Congress to govern ocean resources, the National Marine Sanctuaries Act stands alone in terms of the comprehensiveness, transparency and balanced approach provided for all stakeholders.

An independent legal analysis concluded that "the National Marine Sanctuaries Act is the best existing mechanism available for preserving ocean ecosystems," due to sanctuaries' commitment to public participation, community engagement, and use of a place- and ecosystem-based approach.¹ Unlike other ocean resource laws, the National Marine Sanctuaries Act protects nationally significant places and their natural, historical, and cultural riches. Experience shows that this approach is vital to maintaining the healthy seascapes that underpin our productive economies, supporting thousands of businesses while maintaining public access for recreation, science, exploration, and education.

National Marine Sanctuaries are Economic Engines for Coastal Communities

Sanctuaries foster economic growth, support jobs and businesses, generate billions of dollars in local revenue, preserve underwater and maritime treasures, and provide valuable public access for ocean recreation, research, exploration, and education. Because of strong ties to the local communities, businesses, and organizations, sanctuaries are able to heavily leverage private funds and contributions for taxpayer benefits, ensuring that the benefits of funding national marine sanctuaries far outweigh the Federal outlays that support them.

¹Perkins Coie LLP. (2013) "Area-Based Management of Marine Resources: A Comparative Analysis of the National Marine Sanctuaries Act and Other Federal and State Legal Authorities." Available: <http://www.nmsfocean.org/files/ABMReport.pdf>.

Last year, the 14 sites in the sanctuary system helped drive more than \$8 billion annually to their communities.² Additionally, sanctuaries afford their visitors many recreation opportunities, and the money these activities generate has a substantial economic impact on the surrounding local and regional communities:

- Miami-Dade and Broward County's economies are dependent on the Florida Keys National Marine Sanctuary. Economic contributions of visitors to the sanctuary generated \$1.897 billion in sales and \$2.62 billion in income for the residents.³
- Over \$126 million in whale watching revenue and 600 jobs at 31 businesses resulting from less than \$2 million invested in the Stellwagen Bank National Marine Sanctuary off of Massachusetts.⁴
- 2,100 jobs and a \$291 million budget from marine science and education at the Monterey Bay National Marine Sanctuary, more than 100 times the \$3 million investment by taxpayers.⁵
- Over half (58 percent) of visitors to Alpena, Michigan came to visit Thunder Bay National Marine Sanctuary, which is the region's most popular attraction, boasting nearly 100,000 visitors per year.⁶
- \$11.8 million in new revenue and 334 new jobs would be created by the proposed Central Coast National Marine Sanctuary with a projected 5 percent increase in tourism for San Luis Obispo County and a regional impact of \$18 million and 547 new jobs.⁷
- \$127 million is spent on non-consumptive recreation, which accounts for 95 percent and 86.7 percent in the Northern portion of Monterey Bay and Greater Farallones National Marine Sanctuaries, respectively. This non-consumptive recreation industry supports 1,700 jobs.⁸
- \$101.6 million was spent on recreation in the Olympic Coast National Marine Sanctuary. This spending generated, with multiplier impacts, \$128.2 million in output, \$78 million in value-added (gross regional product), and \$46.1 million in income, which supported 1,192 jobs.⁹

National Marine Sanctuaries Start and Stay in Local Communities

Sanctuaries are created by and for the people. Public participation is a hallmark of the Office of National Marine Sanctuaries and underscores its dedication to civic engagement and leadership. From nomination to designation and day-to-day management decisions, sanctuaries start and stay in local communities. Because of this model, citizens and communities nationwide are expressing a growth of enthusiasm for national marine sanctuaries.

Communities have a controlling influence on sanctuary priorities to ensure unique, local circumstances are addressed. Sanctuary rules and regulations are developed on a site-by-site basis, and, from the outset, sanctuaries are designed to accommodate multiple uses of the ocean.

- Over 440 community representatives serve on Sanctuary Advisory Councils with members from the fishing, tourism, and maritime commerce industries;

²National Marine Sanctuaries Socioeconomic Fact Sheet Available: <http://sanctuaries.noaa.gov/science/socioeconomic/pdfs/onms-socioeconomics-summary.pdf>.

³Vernon Leeworthy and Rod Ehler (2010) Economic Contribution of Recreating Visitors to the Florida Keys/Key West 2007–2008 Available: <http://sanctuaries.noaa.gov/science/socioeconomic/floridakeys/pdfs/economic08.pdf>.

⁴O'Connor, Simon et al (2009). Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits, a special report from the International Fund for Animal Welfare. Prepared by Economists at Large. Available: http://www.ifaw.org/Publications/Program_Publications/Whales/asset_upload_file841_55365.pdf.

⁵Monterey Bay Crescent Ocean Research Consortium. (2012) "Major Marine Sciences Facilities in the Monterey Bay Crescent–2012." Available: http://web.me.com/paduan/mbcorc/Membership_Info_files/MontereyBayLabs2012-2.pdf.

⁶Source: Molnar, Lawrence. 2013. "Economic Impact Analysis for the National Oceanic and Atmospheric Administration, Thunder Bay National Marine Sanctuary, Final Report." Ann Arbor, Michigan: Institute for Research on Labor, Employment, and the Economy, University of Michigan (July). Available: http://irlee.umich.edu/Publications/Docs/ThunderBayNMS_FinalReport.pdf.

⁷Jason Scorse and Judith Kildow (2014) The Potential Economic Impacts of the Proposed Central Coast National Marine Sanctuary Available: <https://chnms.files.wordpress.com/2014/10/chumash-sanctuary-economic-report-100814.pdf>.

⁸U.S. Department of Commerce, NOAA, NOS, ONMS (2015) Economic Impact of Recreational Fisheries on Local County Economies in California's National Marine Sanctuaries 2010, 2011 and 2012 Available: http://sanctuaries.noaa.gov/science/socioeconomic/pdfs/california_rec_sanctuaries.pdf.

⁹Personal Communication.

tribes, State and local government; and scientists, educators, and conservationists to provide advice to sanctuary superintendents on sanctuary operations.

—Over 149,000 hours—equivalent to 74 Full Time Federal Employees and valued at \$3.46 million—are contributed by local sanctuary volunteers each year in areas of research, monitoring, enforcement, education and outreach, and management advisory.

National Marine Sanctuaries' Programmatic Outlook Under Reduced Fiscal Year 2017 Funding Levels

Funding decreases have resulted in layoffs and cutbacks to mission critical sanctuary programs. A lack of funds may result in cuts to public access and recreation opportunities, reduced operations at visitor centers, cancellation of partnerships, a lack of contingency funding needed in case of emergencies like oil spills, and additional inoperable vessels. Of particular concern are proposals to reduce funding for necessary and ongoing renovation and construction projects.

The potential impact of reducing sanctuary appropriations goes far beyond the individual sanctuaries themselves: limiting visitor center hours, eliminating research programs, and diminishing enforcement capacities prevents ONMS from fulfilling its statutory mandates, while also reducing the economic activity and job creation from which healthy communities benefit. Funding sanctuaries below NMSF's recommended levels could force the program to:

- Reduce public access and recreation opportunities for all Americans:* Funding cuts risk the Florida Keys National Marine Sanctuary's 767 mooring buoys, which provide public access and recreational opportunities within the sanctuary while protecting coral reefs and shipwrecks from anchor damage.
- Cut visitor center hours:* Sanctuary visitor centers act as a public face of NOAA to over 350,000 visitors per year, including Monterey Bay National Marine Sanctuary Exploration Center (California), Mokupāpapa Discovery Center (Hawaii), Great Lakes Maritime Heritage Center (Michigan), and Florida Keys EcoDiscovery Center (Florida).
- Cancel education and outreach programs that leverage private funds:* Reduced funding jeopardizes education and outreach activities on the water, at sanctuaries and visitor centers, and in classrooms.
- Vessels Stuck at the Docks and Facing Safety Concerns:* Continued under-investment in the sanctuary fleet maintenance and procurement of new vessels to replace an aging fleet has left a backlog of repairs and needs that could eventually result in the need to leave sanctuary vessels tied up at the docks or could pose a safety concern for sanctuary staff and partners alike.

PREPARED STATEMENT OF THE NATIONAL NETWORK TO END DOMESTIC VIOLENCE

Chairman Shelby, Vice Chairwoman Mikulski, and distinguished members of the appropriations subcommittee, thank you for this opportunity to provide testimony on the importance of investing in Violence Against Women Act programs and the Victims of Crime Act. I sincerely thank the subcommittee for its ongoing support for these lifesaving programs.

I am the president and CEO of the National Network to End Domestic Violence (NNEDV), the Nation's leading voice for victims of domestic violence and their advocates. We represent the 56 State and territorial domestic violence coalitions, their over 2,000 member domestic violence and sexual assault programs, and the millions of victims they serve. Our direct connection with victims and those who serve them gives us a unique understanding of their needs and the vital importance of these continued investments.

The purpose of this testimony is to request an investment of the full authorized amount of \$568.5 million in the Violence Against Women Act (VAWA) and the release of \$2.6 billion from the Victims of Crime Act Fund administered by the U.S. Department of Justice in the fiscal year 2017 budget.

Incidence, Prevalence, Severity and Consequences of Domestic and Sexual Violence.—The crimes of domestic and sexual violence are pervasive, insidious and life-threatening. In 2011, the Centers for Disease Control and Prevention (CDC) released the first-ever National Intimate Partner and Sexual Violence Survey, which found that domestic violence, sexual violence, and stalking are widespread. Domestic violence affects more than 12 million people each year, and nearly three in ten women and one in four men have experienced rape, physical violence, or stalking in his or her lifetime. The terrifying conclusion of domestic violence is often murder, and every day in the United States an average of 3 women are killed by a current

or former intimate partner.¹ The cycle is perpetuated as approximately 15.5 million children are exposed to domestic violence every year.² One study found that men exposed to physical abuse, sexual abuse and adult domestic violence as children were almost four times more likely to have perpetrated domestic violence as adults.

In addition to the terrible cost of domestic and sexual violence to individual victims and their families, these crimes cost taxpayers and communities. According to the Centers for Disease Control, based on 1999 figures, the cost of intimate partner violence exceeds \$5.8 billion each year, \$4.1 billion of which is for direct healthcare services.³ Translating this into 2016 dollars, based on the Bureau of Labor Statistics Consumer Price Index, the annual cost to the Nation is over \$9 billion per year. In addition, domestic violence costs U.S. employers an estimated \$3 to \$13 billion annually.⁴

Despite this grim reality, we know that when a coordinated response is developed and immediate, essential services are available, victims can escape from life-threatening violence and begin to rebuild their lives. To address unmet needs and build upon their successes, VAWA programs and the Victims of Crime Act fund release should receive significant increases in the fiscal year 2017 Commerce, Justice, Science Appropriations bill.

The Need for Increased Funding to Maintain Programs and Bridge the Gap.—At a congressional briefing in March 2016, NNEDV released Domestic Violence Counts (the Census), a 24-hour national snapshot of domestic violence services. The report revealed that in just one day, 71,828 victims of domestic violence received services; over 12,197 requests for services went unmet due to lack of funding and resources. That same year, domestic violence programs reported that they had laid off nearly 1,235 staff positions. Of the staff that were laid off 79 percent were direct service positions, such as case managers, advocates, shelter staff, and child advocates. Programs also reduced or eliminated 1,936 services in the past year ranging from prevention services, therapy, to child welfare advocacy. I urge you to look at the full results at nnedv.org/census2015. For those individuals who are not able to find safety, the consequences can be dire, including homelessness or continued exposure to life-threatening violence. In order to meet the immediate needs of victims in danger and to continue to prevent and end domestic violence, VAWA funding must be increased and additional funds must be released from VOCA.

VICTIMS OF CRIME ACT (VOCA) FUNDING

VOCA uses non-taxpayer money from the Crime Victims Fund for several programs that serve victims of crime, including State formula victim assistance grants. These funds, which are generated by fines paid by Federal criminals, support services to 4 million victims of all types of crimes annually, through 4,400 direct service agencies such as domestic violence shelters, rape crisis centers, and child abuse treatment programs. Additional VOCA funds are critically needed to respond to the crisis caused by the dangerous lack of available services for victims of domestic and sexual violence.

With an obvious need for increased funding, and a balance of more than \$11 billion dollars in the Fund, we were pleased that the subcommittee released \$3.04 billion in VOCA funds in fiscal year 2016. Now is the time to maintain a long-term, logical and consistent basis for determining the annual VOCA cap in order to release additional money for the purpose Congress intended and for which it has been collected. The balance in the Crime Victims Fund is more than enough to significantly increase VOCA funding without jeopardizing the Fund's future sustainability.

We urge you to request that the subcommittee set the annual VOCA funding release level at no less than the average amount deposited into the Fund over the three previous fiscal years, which is approximately \$2.6 billion for fiscal year 2016. We urge you to release \$2.6 billion from the VOCA fund in fiscal year 2017 to address the urgent needs of victims of crime.

Fiscal year 2016 appropriations transferred VOCA funds to VAWA and the President's fiscal year 2017 proposal recommends the same transfer. We oppose VOCA

¹ Bureau of Justice Statistics (2013). Intimate Partner Violence: Attributes of Victimization, 1993–2011 (Special Report NCJ243300).

² McDonald, R., et al. (2006). "Estimating the Number of American Children Living in Partner-Violence Families." *Journal of Family Psychology*, 30(1), 137–142.

³ National Center for Injury Prevention and Control. *Costs of Intimate Partner Violence Against Women in the United States*. Atlanta (GA): Centers for Disease Control and Prevention; 2003.

⁴ Bureau of National Affairs Special Rep. No. 32, Violence and Stress: The Work/Family Connection 2 (1990); Joan Zorza, *Women Battering: High Costs and the State of the Law*, Clearinghouse Rev., Vol. 28, No. 4, 383, 385.

funds being transferred to other CJS accounts, as this reduces vital funding for direct victim services.

Additionally, we urge you to establish a Federal funding stream from VOCA for tribes. Individuals on tribal lands experience disproportionately high rates of domestic and sexual violence and desperately need funding for victim services.

Finally, we request report language that would expand the purpose areas of the Office of Victims of Crime's discretionary funding (10603(c)) to include innovative and needed victim services such as hotlines and helplines, nationwide or multi-State crime victim services, and services for U.S. citizens who are victims of crimes committed outside of the United States. Previously, Congress has appropriated \$12 million for this purpose and the President request \$25 million in fiscal year 2017.

VIOLENCE AGAINST WOMEN ACT (VAWA)

Violence Against Women Act (VAWA)—\$568.50 million funding request.—Since its passage in 1994, VAWA has been the cornerstone of our Nation's response to domestic violence. VAWA has contributed to substantial progress toward ending domestic violence. Despite this progress, an unconscionable need remains for victim services. The progress and promise of VAWA, and related programs aimed at addressing domestic and sexual violence, can only be fulfilled if the programs receive continued investment through the appropriations process. We have highlighted the following programs as key priorities and we urge you to support full funding for these and all VAWA programs as you work on the fiscal year 2017 CJS bill.

VAWA STOP Program—\$222 million funding request.—VAWA's STOP Grant Program is at the core of effective coordinated community responses to domestic violence and sexual assault. These coordinated responses help hundreds of thousands of victims find safety and get the services they need to start over, while holding perpetrators accountable. As the foundational VAWA program, the STOP program awards funds to every State and territory through a formula-based system. States use this STOP funding for law enforcement, prosecution, and courts training and response. Many States establish special units in law enforcement agencies and prosecutors' offices to address domestic and sexual violence. Victims benefit from services including advocacy, crisis intervention, local crisis hotlines, counseling and support, and victim witness notification. A 2014 report to Congress revealed that the STOP grant program helped 431,244 victims of domestic violence, sexual assault, dating violence and stalking; funded over 2,200 staff; and provided professional training for over 200,000 individuals. Increased investment in STOP will allow communities to expand their lifesaving homicide reduction efforts, continue to improve their law enforcement and prosecution responses, and serve more victims. We urge you to request \$222 million to support these essential, comprehensive services. We also request report language that would exempt the STOP program from being subject to the Prison Rape Education Act (PREA) penalty, which would cut 5 percent of this program's funding in States that are not in compliance with PREA.

Legal Assistance for Victims (LAV)—\$57 million funding request.—Research indicates that the practical nature of legal services gives victims long-term alternatives to their abusive relationships. However, the retainers or hourly fees for private legal representation are beyond the means of most victims of domestic violence, dating violence, sexual assault and stalking. Legal services are second only to medical services as the most-requested need of victims. Sadly, of all women who reported needing legal services, 64 percent received no assistance from an attorney.⁵ The LAV program is the only federally funded program designed to meet the legal needs of victims. Targeted increases to the LAV program are a sound investment in long-term solutions to violence. We urge you to provide \$57 million for this program to support legal help for victims.

Rural Grant program—\$50 million funding request.—The Rural Grant Program supports services for victims of domestic violence and sexual assault living in rural and isolated areas. Rural victims face unique barriers, including lack of access to child care, legal services, and public transportation, under-resourced law enforcement, and a shortage of safe shelter and services. Funding for this program has either been cut or remained stagnant for the last several years despite the great need and a number of States becoming newly eligible through the most recent VAWA reauthorization. We urge you to provide \$50 million for this program.

Transitional Housing program—\$35 million funding request.—This vital VAWA program helps communities in every State offer victims a safe place to begin to rebuild their lives. In just one day in 2015, 40,302 adults and children were housed

⁵ National Center for Injury Prevention and Control, Centers for Disease Control and Prevention, *Intimate Partner Violence in the United States—2010* (2014) at 56.

in domestic violence transitional housing programs. On the same day, however, 7,728 requests (63 percent of the unmet requests) for emergency shelter or transitional housing were denied due to a lack of resources. The extreme dearth of affordable housing produces a situation where many victims of domestic violence must return to their abusers because they cannot find long-term housing, while others are forced into homelessness. Increased investment in the Transitional Housing program will allow more States and localities to ensure that victims do not have to make these unfathomable choices. We urge you to provide \$35 million for this program.

Grants to Encourage Arrest (GTEAP)—\$73 million funding request.—GTEAP helps communities develop and sustain a seamless and comprehensive criminal justice response to domestic violence, enhancing victims' safety and holding perpetrators accountable. GTEAP encourages State, local, and tribal governments and State, local, and tribal courts to treat domestic violence, dating violence, sexual assault, and stalking as serious violations of criminal law requiring the coordinated involvement of the entire criminal justice system. The homicide reduction initiative set aside (\$4 million) is designed to address the risk of homicide of abuse victims, especially those in escalating domestic violence situations. Additionally, a set aside for firearms lethality initiative will allow communities to address the deadly combination of firearms and domestic violence. Increased investment in GTEAP to \$73 million will allow communities to continue this lifesaving work.

Sexual Assault Services Program—\$40 million funding request.—The Sexual Assault Services Program (SASP) is the only Federal funding source dedicated to providing direct services to adult and minor victims of sexual violence and is distributed through a State formula grant. Services include hotlines, crisis intervention, advocacy, and accompaniment through medical and legal systems. Increased funding will help eliminate waiting lists and respond to the unmet needs of victims. We urge you to provide \$40 million for this vital program.

Remaining VAWA programs—full funding.—All VAWA programs work together to improve the system-wide response domestic and sexual violence and to meet the unique and pressing needs of victims. VAWA programs should be funded at their full authorization levels, as indicated in the funding chart below.

VAWA and Related Programs Appropriations for Fiscal Years 13, 14, 15, 16, and 17

CAMPAIGN FOR FUNDING TO END DOMESTIC AND SEXUAL VIOLENCE

All numbers are expressed in millions (except as otherwise noted). FY stands for Fiscal Year.

Updated: March 2016

	FY 13 reduced by Sequestration & Rescissions*	FY 14 Budget	FY 15 Budget	FY 16 Budget	FY17 President's Budget	Authorized/ Requested Level
COMMERCE, JUSTICE, SCIENCE APPROPRIATIONS						
VAWA PROGRAMS						
Name of Grant Program						
STOP - Grants to Combat Violence Against Women	\$176.18	\$193.00	\$195.00	\$215.00	\$200.00	\$222.00
Sexual Assault Services Program (SASP)	\$23.30	\$27.00	\$30.00	\$35.00	\$35.00	\$40.00
Services for Rural Victims	\$34.02	\$36.00	\$33.00	\$34.00	\$34.00	\$50.00
Civil Legal Assistance for Victims	\$38.22	\$37.00	\$42.50	\$45.00	\$52.50	\$57.00
Transitional Housing (OVW)	\$23.30	\$24.75	\$26.00	\$30.00	\$30.00	\$35.00
Grants to Encourage Arrest Policies ¶ (GTEAP)	\$46.61	\$50.00	\$50.00	\$51.00	\$62.25	\$73.00
Consolidated Youth-Oriented Program †	\$9.32	\$10.00	\$10.00	\$11.00	\$11.00	\$15.00
Grants to Support Families in the Justice System	\$14.45	\$15.00	\$16.00	\$16.00	\$16.00	\$22.00
Violence on College Campuses (Campus Grants)	\$8.39	\$9.00	\$12.00	\$20.00	\$26.00	\$26.00
Protections and Services for Disabled Victims	\$5.36	\$5.75	\$6.00	\$6.00	\$6.00	\$9.00
Elder Abuse Grant Program	\$3.96	\$4.25	\$4.50	\$5.00	\$6.25	\$9.00
National Institute of Justice (NIJ)	\$3.26	\$3.25	\$3.00	\$5.00	\$3.00	-
Research on Violence Against Indian Women	\$0.93	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
National Resource Center on Workplace Responses	\$0.47	\$0.50	\$0.50	\$0.50	\$0.50	\$1.00
Nat'l Clearinghouse on Sexual Assault of American Indian and Alaska Native Women	\$0.47	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50
Outreach to Underserved Populations	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00
National Tribal Sex Offender Registry	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.00
Tribal Jurisdiction	-	-	-	\$2.50	\$5.00	\$5.00
VAWA CIS Total	\$388.24	\$417.00	\$430.00	\$477.50	\$489.00	\$589.50
Rape Kit Backlog Community Response	-	-	\$41.00	\$45.00	\$41.00	\$45.00
Rape Survivor Child Custody Act ¶	-	-	N/A	\$2.50	\$0.00	\$2.50
VOCA Fund Cap ¶	\$730.00	\$745.00	\$2.36B	\$3.04B	\$2.00B	\$2.60B
Tribal Funding Stream	-	-	-	\$0.00	\$25.00	10%
Funding for OJP/OVW Programs	-	-	-	\$379.00	\$456.00	-
Victim Compensation/Other Statutory and Administrative Spending	-	\$301.50	\$422.50	\$403.00 (est.)	\$319.00 (est.)	-
State Victim Assistance Grants	\$425.20	\$455.80	\$1.95B	\$2.26B (est.)	\$1.157 (est.)	\$2.27B



VAWA and Related Programs Appropriations for Fiscal Years 13, 14, 15, 16, and 17

Campaign for Funding to End Domestic and Sexual Violence

Name of Grant Program	FY 13 reduced by Sequestration & Rescissions*	FY 14 Budget	FY 15 Budget	FY 16 Budget	FY 17 President's Budget	Authorized/ Requested Level
LABOR, HEALTH AND HUMAN SERVICES, AND EDUCATION APPROPRIATIONS						
ADMINISTRATION FOR CHILDREN AND FAMILIES						
Name of Grant Program						
Family Violence Prevention and Services Act (FVPSA)* Domestic Violence Shelters	\$121.19	\$133.50	\$135.00	\$150.00	\$151.00	\$175.00
National Domestic Violence Hotline**	\$3.04	\$4.50	\$4.50	\$8.25	\$12.00	\$12.00
CENTERS FOR DISEASE CONTROL						
Rape Prevention and Education	\$39.39	\$38.00	\$38.80	\$44.43	\$44.43	\$50.00
DELTA - Domestic Violence Prevention Enhancement and Leadership Through Alliances*	\$5.13	\$5.20	\$5.40	\$5.50	\$5.50	\$6.00
Preventive Health and Health Services Block Grant (PHHSBG) Sex Offense Set-Aside Δ	\$7.00	\$7.00	\$7.00	\$7.00	\$0.00	\$7.00
OFFICE ON WOMEN'S HEALTH						
Violence Against Women Health Initiative	\$2.30	\$2.30	\$3.10	\$3.10	\$3.10	\$10.00
L-HHS Total	\$178.05	\$190.50	\$193.80	\$218.28	\$216.03	\$260.00
TRANSPORTATION, HOUSING, AND URBAN DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS						
VAWA Housing Vouchers^	-	-	-	\$0.00	\$0.00	\$20.00

PLEASE NOTE: This chart will continue to be updated throughout the FY 2017 Appropriations process. Updates can be found at www.nnedv.org/funding.

* Rescissions and sequestration: In FY13, most discretionary programs, including those at OVW, were subjected to Sequestration cuts between 5-7%. Additionally, unobligated or deobligated OVW funds have been rescinded in FYs 13-16 (from \$12-\$16 million.)

Δ In FYs12-16, \$4 million has been set aside in GTEAP (now called Improving Criminal Justice Responses (ICJR)) for a homicide reduction initiative, FY17 includes both a \$4 million set aside for a homicide reduction initiative and \$4 for a firearm lethality reduction initiative.

† VAWA 2013 consolidated youth and prevention programs into two programs, which have been further consolidated via appropriations for the past several years. The individual programs are called "CHOOSE" and "SMART."

¶ VOCA: Tribal funding: We support establishing a VOCA Tribal funding stream at 10% of VOCA funds. The President's 17 Budget proposed \$25 million for tribal victim services and the FY 16 Senate CJS bill allocated \$52 million for tribes. Set-asides and State Victim Assistance Grants: We object to proposals and bills that transfer funds from Crime Victims Fund to other accounts (e.g. FY 16 omnibus/FY 17 President's proposed budget). Victim Compensation and other amounts deducted from the VOCA release are designated by statute or by the Administration, not decisions made in the Appropriations bills. These numbers are included in the chart to demonstrate the relevant variables that lead to the final funding allocation for State Victim Assistance grants. State Victim Assistance grants fund local organizations to provide direct services to victims in crisis. We request report language that would expand the purpose areas of the Office of Victims of Crime's discretionary funding (42 U.S.C. 10603(c)) to include innovative and needed victim services such as hotlines and helplines, nationwide or multi-State crime victim services, and services for U.S. citizens who are victims of crimes committed outside of the United States. Previously, Congress has appropriated \$12 million for this purpose and the President request \$25 million in FY 17.

*FVPSA, the National Domestic Violence Hotline, and DELTA are authorized through the Family Violence Prevention and Services Act (FVPSA). The President's FY17 request includes \$1 million to establish a new Alaska Native Tribal Resource Center on Domestic Violence, which would build capacity in tribes across the State to develop effective, local responses to domestic violence.

**This funding increase would maintain and increase capacity of the National Domestic Violence Hotline, fund a tribal domestic violence hotline, and other hotline-related projects.

Δ PHHSBG is authorized through the Public Health Services Act and includes a mandatory set-aside for providing services to rape victims and for rape prevention.

^ This new initiative would help fulfill the emergency transfer policies mandated by VAWA 2013. To be funded as part of the tenant-based rental assistance in Public & Indian Housing, these emergency transfer vouchers would allow victims to move from their unsafe home to new housing without having to become homeless. This will meet a crucial need of survivors, prevent homelessness and increase safety.

¶ The Rape Survivors Child Custody Act boosts VAWA funding for states that allow for women to petition for the termination of parental rights based on clear & convincing evidence that a child was conceived through rape.

CONCLUSION

These programs work together to prevent and end domestic and sexual violence. While our country has made continued investments in the criminal justice response to these heinous crimes, we need an equal investment in the human service, public health and prevention responses in order to holistically address and end the violence. These vital, cost-effective programs help break the cycle, reduce related social ills, and will save our Nation money now and in the future.

[This statement was submitted by Kim Gandy, President and CEO.]

PREPARED STATEMENT OF THE NATIONAL SCIENCE FOUNDATION

Dear Mr. Chairman and members of the subcommittee, thank you for the opportunity to present testimony in support of strong and balanced funding for the National Science Foundation. This testimony is submitted on behalf of the organizations listed in the left margin on this and subsequent pages. They all support funding the National Science Foundation at \$8 billion in fiscal year 2017—including full funding for the geosciences portfolio of research and related national and user facilities within the NSF request.

We believe investing in NSF will support the kind of basic research and development investment that will prevent an innovation deficit and help ensure the United States maintains the world's most innovative, dynamic and vibrant economy. Robust Federal investment in basic research and development has long proven key to accelerating our economy's productivity growth and much in the fiscal year 2017 budget would help build on that progress. Increasing research investments in the earth, ocean, atmospheric and climate sciences—areas with incredible need and potential—are examples where this budget proposal seeks to address global problems with U.S.-led research that can also yield real economic benefits, national security, and public safety for our Nation.

GEOSCIENCES RESEARCH AND NATIONAL SECURITY

On September 15, 2015, a distinguished group of former military and national security leaders said the following:

“ . . . we urge you to protect funding for NASA Earth science and NSF Geoscience programs. These programs are essential parts of a broader whole of government and whole of society effort to provide essential data about and better scientific understanding of global, regional, and local Earth processes. That essential data about better scientific understanding of the underlying science are critical to many strategic planning, strategy, and investment decisions in both the private and public sectors, very much including national security. From better understanding weather, wind patterns and intensity, changing global land cover, snow, ice and glacier melting, and seismic activity, to capturing new insights about ocean-atmosphere dynamics and changing ocean circulation, these . . . programs represent one of the pillars of our Nation's environmental information supply chain. This critical but fragile chain begins with science and data and evolves into decision support products and tools that inform and protect our citizens, property, businesses, and interests around the world. [These programs] directly link to food, water, energy, and economic security, all of which are inherently tied to our national security.”

The national security implications are far reaching as they may exacerbate existing stressors, contributing to poverty, environmental degradation and political instability providing enabling environments for terrorist activity abroad. For example, the impacts of climate change on key economic sectors, such as agriculture and water, can have profound effects on food security, posing threats to overall stability.

On January 14, 2016, Robert Work, the Deputy Secretary of Defense issued DOD Directive 4715.21 that establishes departmental policy and responsibilities within DOD to assess and manage risks associated with the impacts of climate change. The policy statement in this directive says:

“ . . . The DOD must be able to adapt current and future operations to address the military. Mission planning and execution must include: (a) identification and assessment of the effects of climate change on the DOD mission; (b) taking those effects into consideration when developing plans and implementing procedures; and (c) anticipating and managing any risks that develop as a result of climate change to build resilience . . . ”

DOD's ability to implement this new policy directive is dependent on the scientific information that comes out of the geosciences research supported by NSF and other agencies.

GEOSCIENCES AND THE PRIVATE SECTOR COMMERCIAL WEATHER INDUSTRY

On June 5, 2015, the Chairman and Executive Officer of the Weather Company said the following about the economic importance of the geosciences and related disciplines:

" . . . Research conducted through NSF's geosciences program, NASA's Earth Sciences program and NOAA's weather and climate research programs have enabled us, in partnership with these agencies, to inform citizens and businesses of weather and climate events in a tailored manner that enables them to be weather-ready and climate-smart. Cutting these investments . . . will have negative consequences on our economy and quality of life in the coming years. They are vital investments to maintain our leadership in environmental information and services."

GEOSCIENCES AND THE INSURANCE INDUSTRY

In a hearing before the Senate Environment and Public Works Committee in July of 2013 the President of the Reinsurance Association of America said the following about the importance of research in the geosciences to the economic viability of the insurance industry and those they insure:

" . . . Our industry [the reinsurance industry] is science based. Blending the actuarial sciences with the natural sciences is critical in order to provide the public with resources to recover from natural events Developing an understanding about climate and its impact on droughts, heat waves, the frequency and intensity of tropical hurricanes, thunderstorms and convective events, rising sea levels and storm surge, more extreme precipitation events and flooding is critical to our role in translating the interdependencies of weather, climate risk assessment and pricing"

GEOSCIENCES AND THE PRIVATE SECTOR AQUACULTURE INDUSTRY

On May 8, 2015 Diane Pleschner-Steele, Executive Director of California Wetfish Producers Association, a major industry aquaculture organization in California said:

" . . . NSF's Geoscience Directorate funds data collecting buoys that provide a long-term signal of increased ocean acidification among other measurements. These forecasts will be critical to maintain for both open-ocean aquaculture and important shellfish fisheries, as these industries are hugely important economically on both west and east coasts. Proposed cuts to the Geoscience Directorate put the data on which the seafood industry depends, and the domestic seafood-producing economy as a whole, at risk"

RESEARCH UNDERLYING FRACKING TECHNOLOGY YIELDS ECONOMIC BENEFITS

Investment in the geosciences provided the fundamental understanding of geologic structures and processes necessary to utilize hydraulic fracturing (fracking) processes to release oil and gas from shale formations. The ability of U.S. companies to develop these natural resources is built upon decades of fundamental research and technology development in the earth sciences. According to a 2013 report from U.S. Chamber of Commerce's 21st Century Energy Institute, fracking has created a job boom even in States that don't actually have shale deposits, with 1.7 million jobs already created and a total of 3.5 million projected by 2035.

GEOSCIENCE GRADUATES—SOURCE OF TECHNICAL TALENT FOR ENERGY AND ENVIRONMENT INDUSTRY

The geosciences research that NSF funds helps educate and train the next generation of geoscientists. According to the Bureau of Labor Statistics (BLS), there were a total of 296,963 geoscience jobs in 2012, and this number is expected to increase by 14 percent by 2022 to a total of 339,737 jobs. Approximately 143,000 geoscientists are expected to retire by 2022, but over the next decade, approximately 51,000 students will be graduating with their bachelor's, masters, or doctoral degrees in the geosciences. Therefore, according to the American Geosciences Institute's (AGI) *Status of the Geoscience Workforce Report 2014*, assuming minimal non-retirement attrition from the geoscience workforce, there is expected to be a deficit of approximately 135,000 geoscientists by 2022. Texas leads the Nation in the number of geo-

science undergraduates and graduate students enrolled within geoscience departments.

The AGI report, *Status of Recent Geoscience Graduates 2015*, shows a shift in hiring patterns for geoscience industries. For the first time in the report's history, an industry other than oil and gas hired the highest percentage of bachelor's graduates: environmental services. According to the report, approximately 40 percent of bachelor's graduates found a job in the environmental services industry, which includes fields such as environmental consulting and remediation of land assets such as water and soil. Sixteen percent of bachelor's graduates went on to find jobs in the oil and gas industry in 2015, down from 36 percent in 2014. Changing employment dynamics and record low oil prices have led the oil and gas industry to reduce employment opportunities. Nevertheless, 67 percent of master's graduates found jobs in the oil and gas industry, an increase from 59 percent in 2014. Other industries hiring geoscientists include: manufacturing or trade, construction, information technology services, and agriculture. NSF's support for the geosciences contributes significantly to the education and training of these individuals via NSF's programs in research, graduate student support, and undergraduate student support.

CONCLUSION

It is important to appreciate that the NSF's investments in all fields of science and engineering—including the geosciences—have addressed important national and global challenges, spurred new economic sectors, and led to the development and implementation of advanced technologies that save lives, protect property, and support our economy. We appreciate the difficult decisions Congress must make within the constraints of the budget environment. However, we believe the future of the Nation is well served by a strong and sustained investment in the full scope of our research enterprise, which includes the geosciences. Thank you for the opportunity to present these views.

PREPARED STATEMENT OF THE NATIONAL WEATHER SERVICE EMPLOYEES ORGANIZATION

The employees of the National Weather Service urge the subcommittee to once again reject the administration's proposal to eliminate funding for the NWS Information Technology Officers. We also express our concern over the woefully inadequate funding being sought to make urgently needed repairs to our Nation's weather offices.

INFORMATION TECHNOLOGY OFFICERS

The administration has proposed to eliminate 122 additional positions at Weather Forecast Offices nationwide in addition to over 300 positions already eliminated from those offices since 2010 through attrition. Congress has rejected this proposal in each of the last four appropriations cycles, insisting that the NWS first complete its Operational and Workforce Analysis, currently being conducted by McKinsey and Co. This analysis is still ongoing, but the first phase of the study, released last fall, revealed that there were nearly 600 vacant positions in the NWS overall (a 14 percent vacancy rate) and that most forecast offices have insufficient staff to handle the existing workload. The ITOs are necessary to assist with these critical staffing shortages. Many are also trained meteorologists, and even those that are not assist during critical weather events. The ITO at the Albany Forecast Office describes how he contributes to the offices operations during severe weather:

Although our job title is Information Technology Officer, the majority of ITOs do indeed work weather forecast shifts, issue watches, warnings and advisories, provide decision support services, conduct media interviews for weather, work severe weather events and conduct storm surveys. ITOs are a main component during severe weather events. There is absolutely no time to pickup the phone and call a support desk if there is an issue with an F2 tornado warning going out. Most offices have a policy to have the ITO working during severe weather events. During my time at Albany, I have issued numerous severe thunderstorm warnings, tornado warnings, flash flood warnings, flood warnings and civil emergency messages. I also provided decision support services for numerous incident events from a chemical spill to a tour boat with 65 people capsizing. During extreme events, ITOs are constantly wearing two hats (meteorologist and IT).

The ITO from the Nashville Forecast Office, who is not a meteorologist, explains how he is also able to contribute broadly to the work of his office:

For the past several years I have filled in to do the job of Observation Program Leader and the coop program, and fill in pulling upper air shifts for a retired Hydro-Meteorological Technicians. During severe weather operations, I help with timely local storm reports, weather products and graphics, and onsite support. On February 20th, 2014, we had a NOAA Weather Radio console failure, resulting in none of our tornado and severe thunderstorm warnings getting out to our customers via Weather Radio. For over 2 hours, I went live while troubleshooting and correcting the issue. Without my service in and out of operations, this would have never happened in a timely, life-protecting manner. Off site support would have never provided the life protecting service that I did that night. Severe weather operations do not end with the end of the event. I also am a team leader in post storm severe weather surveys.

As the Senate Appropriations Committee noted when rejecting an earlier proposal to eliminate the ITOs, the "IT staff have proven to be valuable parts of the local weather forecast teams." Senate Report No. 112-158, at 31. In fact, the ITO at the Baltimore/Washington Forecast Office was recently named as the NWS Eastern Region "Employee of the Year" for 2015, out of over 500 co-workers. A team that included the three ITOs from Charleston, South Carolina and Morehead City and Wilmington, North Carolina, was named "Eastern Region Outstanding Team of the Quarter" for the second quarter of 2015 by the NWS Eastern Region Director, Jason Tuell, who wrote in an "all-hands" email:

The 2015 tropical season was the inaugural season for the baseline AWIPS II tropical software. A rare, preseason tropical cyclone resulted in significant challenges as AWIPS II software configuration and testing for tropical cyclones needed to be greatly accelerated. The team collaborated non-stop for the week leading up to the formation of Tropical Storm Ana. Through the accelerated process of achieving operational readiness, the team identified several previously unknown software deficiencies, implemented and shared short-term fixes "on the fly", and coordinated long-term solutions with software developers. As the first Tropical Storm Watches were raised by the National Hurricane Center on the evening of May 7, the team stayed on the job well into the early morning hours to troubleshoot and overcome technical difficulties that would otherwise have resulted in significant delays in the dissemination of critical tropical cyclone products and services. The team continued to provide operational support through the weekend of May 9 and 10, ensuring that the NWS mission was fulfilled as slow-moving Tropical Storm Ana made landfall in the Carolinas.

The NOAA budget justification contains a promise to reassign the ITOs to other vacant positions. But the NWS should promptly fill the hundreds of critical vacancies with new hires instead. Reassignment of ITOs to other vacancies will do nothing to reduce the overall staffing shortfall that, as the McKinsey study has already determined, has resulted in a dire situation in which the workload exceeds available workforce at most forecast offices.

And once again, the budget justification fails to explain how 24 regionally based ITOs can, at a distance, handle the same workload performed by 122 employees who work at the site of the problem. No workload analysis has ever been conducted. This year's budget justification contains the same preposterous claim that the regional team approach will "meet or exceed current service levels" without any factual basis or prototyping. The proposal once again claims that "the current service delivery model has redundancies," but it fails to identify a single one.

The budget justification also claims that the NWS "has identified efficiencies which have been realized in the delivery of IT support to field offices through investments in open source software and implementation of IT best practices." NWSEO circulated NOAA's budget justification to the ITOs for review and comment. Not a single ITO could identify any "efficiencies which have been realized" through open source software of implementation or any so-called "IT best practices." Simply stated, the ITOs don't know what this portion of the budget justification could possibly be referring to. The workload of the ITOs remains as busy, if not busier, than ever. According to the ITOs, the deployment of AWIPS 2 has not reduced their workload as the budget justification claims. The ITO at the Wichita Forecast Office explains that:

With the completed implementation of AWIPS II, having an ITO on site with local knowledge is even more crucial. The new AWIPS platform, while more

user-friendly, is considerably more complex to maintain. When problems are encountered in AWIPS, forecasters often notify the office ITO, when applicable, who then determines if the problem can be fixed locally, or needs to be escalated to the remote Network Control Facility (NCF). Baseline issues and serious problems are escalated to the NCF, so that any fixes can be incorporated into future releases, or issued as Discrepancy Reports. In most cases, however, the ITO, who has intricate, local knowledge of the system can rectify the issues much more quickly. In addition, the AWIPS II contractor has left the field offices with hundreds of software deficiencies, for which the local field offices must mitigate or find work-arounds.

This view was echoed by the ITO at the Atlanta Forecast Office:

Since deployment of AWIPS 2, I've found out that my workload regarding AWIPS 2 has not decreased, but at the very least, stayed the same. There is still customization and testing of AWIPS 2 that still needs to be done, to ensure that AWIPS 2 is properly configured, something a centralized READI team member will struggle with, as (s)he will need to be aware of each office's unique situation.

It appears to NWSEO and to the ITOs that the author of this portion of the budget justification has no familiarity with the actual work of the NWS ITOs nor of NWS Forecast Office operations, but rather relied on some generic justification for reducing IT positions elsewhere in the government.

FACILITY CONSTRUCTION AND REPAIR

As the agency's budget justification correctly notes, "maintaining the structural integrity" of NWS forecast offices and other operational facilities is required for "ensuring uninterrupted forecasts for local communities." NOAA Budget Estimates Fiscal Year 2017 at NWS-80. The President's budget requests \$8,650,000 for "facilities construction and major repairs" at the Nation's 122 Weather Forecast Offices, 13 River Forecast Centers and 18 smaller Weather Service Offices. However, this amount is woefully inadequate to address rapidly deteriorating conditions at these critical installations.

The NWS's Office of Facilities is conducting a 3-year "Facilities Condition Assessment." NWS facilities are being surveyed by a third-party independent evaluator. One-third of the facilities are being surveyed each year. The first third—consisting of 65 sites—was surveyed in fiscal year 2014 and the results of that survey have just been compiled and assessed. Shockingly, the survey reveals that \$26,515,622 is needed for "Priority 1 maintenance" that is "required within 90 days." This number represents the immediate need at just one-third of the agency's facilities, and therefore it is fair to assume that at least \$75 million may be needed agency-wide for immediate, essential repairs. All but four of the Weather Forecast Offices surveyed in this first set need over \$100,000 in "priority 1" maintenance. Numerous facilities were identified that need repairs in excess of one-third of the replacement cost of the entire building. Yet, the amount requested by the President's budget only envisions "up to 12 highest priority major system replacements annually." NOAA Budget Estimates Fiscal Year 2017 at NWS-80.

The failing physical condition of NWS facilities is attributable to two primary causes. Unlike most other Federal offices, Weather Forecast Offices and other NWS operational facilities operate 24/7, 365 days a year and therefore receive three to four times the normal "wear and tear" on its systems than do other offices in the same amount of time. In addition, the amount of funds requested and appropriated in prior years has been inadequate to address the growing maintenance problems. Further delayed maintenance may well require more costly building replacement. Therefore, Congress should appropriate at least the \$26,515,622 identified so far as needed for priority 1 repairs.

Thank you for considering the views of the employees of National Weather Service as you shape this year's Department of Commerce Appropriations Act.

PREPARED STATEMENT OF THE NATIVE AMERICAN RIGHTS FUND

Summary of the Request: The Native American Rights Fund (NARF)¹ submits this written statement regarding the fiscal year 2017 budget request for the Depart-

¹ Founded in 1970, the Native American Rights Fund (NARF) is the oldest and largest non-profit law firm dedicated to asserting and defending the rights of Indian tribes, organizations and individuals nationwide. NARF's practice is concentrated in five key areas: the preservation

ment of Justice (DOJ) for the record. We respectfully request this subcommittee's consideration in the development of the fiscal year 2017 Commerce, Justice, Science and Related Agencies appropriations bill of maintaining funding within the Department of Justice, Office of Justice Program, State and Local Law Enforcement Assistance account at a level similar to that provided in recent years of approximately \$2 million for the Tribal Civil and Criminal Legal Assistance, Training and Technical Assistance grant program within either "assistance to Indian tribes" or a tribal set-aside of a percentage of all Office of Justice Programs accounts, as the administration has again proposed for fiscal year 2017. We also request the inclusion of report language—as provided in recent years in the Committee's report accompanying the spending bill—that would direct that DOJ's allocation of fiscal year 2017 funding for "assistance to Indian tribes" or under a tribal set aside of overall DOJ funding include mention of some funding for the provision of civil and criminal legal assistance to individual tribal citizens and to tribal judicial systems pursuant to the Indian Tribal Justice Technical and Legal Assistance Act (Public Law 106-559).

Background to the Request: In 2000, Congress enacted the Indian Tribal Justice Technical and Legal Assistance Act (Public Law 106-559). Sections 102 and 103 of that statute specifically authorized the Department of Justice, subject to available appropriations, to provide grants to "non-profit entities . . . which provide legal assistance services for Indian tribes, members of Indian tribes, or tribal justice systems pursuant to Federal poverty guidelines" [emphasis added] for tribal civil and tribal criminal legal assistance, respectively. The Indian Tribal Justice Technical and Legal Assistance Act of 2000 was reauthorized as section 242 of the Tribal Law and Order Act (Public Law 111-211).

For the past 6 years, a consortium of 24 Indian Legal Services programs connected with the Legal Services Corporation (LSC) and operating in 23 States has been awarded funding under DOJ's Tribal Civil and Criminal Legal Assistance, Training and Technical Assistance (TCCLA) grants program. In addition to individual representation, Indian Legal Services programs are currently assisting more than 160 tribal governments and/or tribal judicial systems.

Most recently, under the fiscal year 2015 grant solicitation, the Bureau of Justice Assistance awarded the Indian Legal Services programs a total of \$1.2 million to provide civil and criminal legal assistance to thousands of Native American clients, including juveniles, who meet Federal poverty guidelines. We are awaiting an announcement about whether some of the fiscal year 2016 appropriation for "assistance to Indian tribes" will be allocated to the TCCLA program.

Since 1968, Indian Legal Services programs have been providing essential capacity-building services to many tribal courts across the country, and have provided representation of Indian individuals in those courts. In particular, Indian Legal Services programs have been assisting tribal governments and tribal citizens to implement and accomplish the significant victories that Indian Country achieved with the Tribal Law and Order Act of 2010 (TLOA) and the Violence Against Women Reauthorization Act of 2013 (VAWA).

With respect to the work of capacity-building services to tribal judicial systems, tribes have noted that the lack of attorneys practicing in tribal court is the single biggest barrier to exercising the authorities under the Tribal Law and Order Act and the Violence Against Women Reauthorization Act of 2013. A number of Indian Legal Services programs are currently providing capacity-building assistance to tribes, and that is laying the foundation toward their implementation of TLOA and VAWA. This work includes assisting tribes with revisions to their criminal codes for compliance with these statutes, as well as drafting and updating codes, policies and procedures; establishing or rehabilitating tribal courts; training judicial and law enforcement personnel; and negotiation or litigation to address jurisdictional issues with State court systems. The programs are engaged in TLOA or VAWA implementation assistance for 18 of the 160 tribes they serve, and provide the only public defender service available in at least 46 tribal courts.

In many instances, these Indian Legal Services programs have been "on the ground" in tribal communities for decades, an integral part of the legal structure of the reservation communities they serve. The attorneys are well-versed in the uniqueness and complexities of Indian law, and are specialized legal practitioners. The Indian Legal Services programs are assisting tribal governments and their justice systems in being grounded in solid codes and laws—which benefits not only members of the tribal community, but non-Indians who do business, attend school, collaborate with tribal enterprises and live in these tribal communities. This work

of tribal existence; the protection of tribal natural resources; the promotion of Native American human rights; the accountability of governments to Native Americans; and the development of Indian law and educating the public about Indian rights, laws, and issues.

includes such assistance as tribal court development, restructuring and improvement; development of tribal dispute resolution, peacemaker/mediation systems and alternatives to incarceration; drafting of civil and criminal codes, including children's codes, and rules of procedure; and training of tribal court and justice systems personnel and tribal court lay advocates and guardians *ad litem*. Lay advocate and peacemaker trainings have been done with tribal colleges and university law schools.

In addition, legal representation of American Indian and Alaska Native youth and families is a central focus of many of the Indian Legal Services programs' individual representation cases. In affording access to justice for individuals, the programs' individual legal representation has expanded from traditional legal issues such as employment, disability benefits claims and housing issues to include domestic violence, pro se assistance, family member prisoner visitation, re-entry and expunctions for certain criminal charges, and child welfare, guardianship and adoption. This work also includes representation of families in Indian Child Welfare Act cases in State court; addressing the impact on individuals and families from substance abuse and correlated incidents of criminal activity by reforming tribal sentencing guidelines; representation in divorce, child custody, paternity, child support, guardianship (minor and adult), and children in need of care cases (juvenile dependency) and in will drafting cases; and providing civil legal and public defender services.

Here are several State-specific examples of Indian Legal Services program:

- Alaska Legal Services has continued working with a south-central Alaska tribe that is developing a groundbreaking joint State-tribal therapeutic drug court, providing legal advice to the tribe as it develops ideas on how State and tribal judges can sit jointly on cases.
- Serving the citizens of and located on the Navajo Reservation in Arizona, New Mexico and Utah, one of DNA People's Legal attorneys has been working with Navajo Nation Prosecutors to start revising the Navajo Nation Criminal Code as it relates to the Sex Offender Registration and Notification Act.
- After meeting with the California law review commission, California Indian Legal Services staff has been developing a final draft of the model adult guardianship code to address how the tribes will fit in the State's adoption of the Uniform Adult Guardianship and Protective Procedures Act.
- Pine Tree Legal Assistance of Maine has been assisting the Passamaquoddy Restorative Justice Commission with proposed revisions to the tribe's sentencing guidelines that would allow for the inclusion of both traditional conflict resolution practices and community-based healing and restoration processes.
- Oklahoma Indian Legal Services developed an expungement practice to clear criminal records of tribal members whose lives are adversely impacted by their criminal record.
- Northwest Justice Project in Washington provides free legal advice clinics for low-income tribal members on hard-to-reach Indian reservations in the State. The legal advice clinics discuss civil legal issues such as Family Law (custody, divorce and child support); Housing Law (evictions foreclosures, tenant and mobile home rights); Consumer Law (pay day loans, collections and repossessions); Education Law (suspensions, expulsions and special education rights); Employment Law (terminations); and Health and Welfare Benefits.
- Wisconsin Judicare has been participating with statewide efforts to improve Indian Child Welfare Act compliance over the past 5 years since the passage of the Wisconsin Indian Child Welfare Act.

The TCCLA grants that Indian Legal Services programs have been awarded are funded separately from DOJ's Consolidated Tribal Assistance Solicitation (CTAS) program. In fact, a number of the Indian Legal Services programs provide capacity-building assistance to very small tribes or consortia of small tribes which do not have the personnel or resources to submit applications for CTAS funding, and/or civil or criminal legal representation of their members.

In fiscal year 2017, whether Congress provides funding to the DOJ in an overall sum for Indian Country law enforcement programs (such as the \$30 million appropriated in fiscal year 2016 for "assistance for Indian tribes"), or as a tribal set-aside of a percentage of overall DOJ funding, we request that funding of approximately \$2 million be designated for the purpose of the provision of tribal civil and criminal legal assistance to individual tribal citizens and to tribal judicial systems pursuant to the Indian Tribal Justice Technical and Legal Assistance Act.

Thank you for your consideration of this request.

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Thank you for the opportunity to comment on the fiscal year 2017 appropriations for the National Oceanic and Atmospheric Administration (NOAA). The Nature Conservancy is a non-profit conservation organization working around the world to protect ecologically important lands and waters for both people and nature. As the Nation enters the fiscal year 2017 budget cycle and another year of fiscal challenges, the Nature Conservancy recognizes the need for fiscal restraint. We believe the budget levels the Nature Conservancy supports represent a prudent investment in our country's future with modest, targeted increases that are expected to yield great returns. This investment not only helps NOAA catalyze local and regional action, but also reduces risk and saves money based on tangible economic and societal benefits that natural resources provide.

Over the years and across many sites, NOAA has been an invaluable partner to the Conservancy. NOAA programs that provide practical, community-oriented approaches to restoration, resource management, and conservation are natural fits for the Conservancy's mission. NOAA Fisheries has made important strides in addressing key challenges and strengthening fisheries management and recovery of protected species; however, much more needs to be done. To recover fish stocks so that they provide food and jobs to struggling fishermen now and in the future, we need to reduce destructive fishing practices, restore coastal habitats that produce fish, and support the efforts of fishermen and local communities that depend on fishing—and do so in a way that engages fishermen in collaborative efforts. In addition, NOAA's data, research, and monitoring of coastal and marine systems directly provide data and decision-support tools that inform the safe operations of industry, prioritize habitats for restoration, and advance science-based management decisions. Through financial and technical support, NOAA's programs enhance coastal economies dependent on healthy coastal systems and reduce the risk posed by storms and changing coastal conditions.

NATIONAL MARINE FISHERIES SERVICE

Fisheries and Ecosystem Science Programs and Services: The Nature Conservancy supports the President's request of \$150.169 million. There is a high correlation between good information about the status of a fish stock and the effectiveness of management. Systems for collecting fishery data tend to be paper-based, slow, expensive and prone to errors and gaps. On-board video monitoring has been piloted, but has yet to be implemented in any U.S. fisheries. The administration has incorporated the fiscal year 2016 increase for Electronic Monitoring and Reporting into base funding. The subcommittee's previous report language has been very helpful, and continued congressional guidance on the need to provide clear data and storage standards will be useful in moving these efforts from pilot to full implementation. Priority should be given to those fisheries that have already piloted these efforts. Also key is improving our understanding of the ecological and economic connections between fisheries and nearshore habitats. The administration's proposed \$5.929 million increase for Ecosystem-based Solutions for Fisheries Management will provide tools and information to better target fisheries habitat restoration efforts.

Habitat Conservation and Restoration: The Nature Conservancy supports the President's request of \$58.39 million. Coastal wetlands and nearshore waters produce the fish and shellfish that feed America. The health of these places is essential to the economic and social well-being of those who live, work, and recreate in coastal communities. Additionally the restoration and protection of coastal resources help to provide flood control and prevent erosion to protect our communities from storm surges. Through the Community-based Restoration Program and the Habitat Blueprint initiative, The Nature Conservancy works closely with NOAA to restore the health of degraded habitats in places and ways that benefit not just local marine life, but communities and coastal economies as well. Project funds are awarded on a competitive basis and typically leverage the resources and capacity of multiple partners. This work enhances our understanding of the connections between fisheries productivity and habitat, measures the effectiveness of conservation and restoration activities, and applies those lessons to improve future efforts. The administration has also requested an important \$3.5 million increase to enhance NOAA's capacity to for consultations on and implementation of Essential Fish Habitat. The Regional Fishery Management Councils address fishing impacts on these areas, and NOAA must have sufficient capacity to provide technical assistance to the Councils and to work with Federal agencies to avoid, minimize, and mitigate the impacts of their actions on these important fishery habitats.

Fisheries Management Programs and Services: The Nature Conservancy supports the President's request of \$121.895 million. NOAA Fisheries has made important

strides in addressing these challenges and strengthening fisheries management; however, much more needs to be done. To recover fish stocks so that they provide food and jobs to struggling fishermen now and in the future, we need to reduce destructive fishing practices, restore coastal habitats that produce fish, and support the efforts of fishermen and fishing communities and do so in a collaborative way. Work begun to improve the management of electronic monitoring and reporting with the increase in the fiscal year 2016 budget has notably been incorporated into base program funding. Recent legislation and administrative action to combat illegal, unreported, and unregulated (IUU) fisheries show great promise in leveling the playing field for legal fishermen. The modest proposed increase of \$1.556 million to improve traceability will enable NOAA to take the next steps on traceability of seafood. Catch shares give participating fishermen a stake in the benefits of a well-managed fishery and align the incentives for resource stewardship with the natural incentive for fishermen to increase their earnings with a sustainable business model. Transition to these systems is difficult and the modest \$2.505 million proposed increase will help NOAA get the design and implementation of these new catch share programs right by engaging fishing communities.

Fisheries Data Collections, Surveys and Assessments: The Nature Conservancy supports the President's request of \$164.749 million. Limited or poor quality information on the status of fishery stocks undermines the effectiveness of fishery management and can erode political support for conservation measures. Accurate and timely stock assessments are essential for the sound management of fisheries and the sustainability of fishing resources. The funding proposed will help the agency prioritize assessments, determine what level of assessments are needed and, where to appropriately incorporate ecosystem linkages—such as climate, habitat, multispecies assemblages, and socioeconomic factors.

Pacific Coastal Salmon Recovery Fund: The Nature Conservancy supports the President's request of \$65 million. The Conservancy appreciates the Subcommittee's efforts to maintain robust funding levels for the Pacific Coast Salmon Recovery Fund (PCSRF). It is the most critical Federal program addressing major threats to Pacific salmon so that these fish can continue to sustain culture, economies, recreation, and ecosystem health. PCSRF funding is tailored for each State, competitively awarded based on merit, and has funded hundreds of successful, on-the-ground salmon conservation efforts. PCSRF invests in cooperative efforts to conserve species under NOAA's jurisdiction, and projects are matched at a 3:1 ratio (Federal/non-Federal). Notably, the PCSRF has catalyzed thousands of partnerships among Federal, State, local, and tribal governments, and conservation, business, and community organizations.

Protected Resources Science and Management: The Nature Conservancy supports the President's request of \$216.721 million. Competitive grants to States and tribes support conservation actions that contribute to recovery, or have direct conservation benefits for, listed species, recently de-listed species, and candidate species that reside within that State. NOAA's proposed \$16.012 million increase for Species Recovery Grants will allow the agency to expand partnerships to address the growing number of listed species and allow for larger, ecosystem-level scale recovery efforts. The Nature Conservancy works with State agency partners to restore endangered species and monitor the results of these efforts, including several Species in the Spotlight initiative species. These grants are essential for having a direct benefit to "on the water" restoration efforts. Additional listed species and emerging challenges to recovery has increased the number and complexity of NOAA's consultation and permitting requirements under the Endangered Species Act and Marine Mammal Protection Act. The proposed \$13.452 million to Increase Consultation Capacity will aid NOAA's ability to complete these requirements in a timely and predictable manner. Recovery of listed Atlantic and Pacific salmon provide distinct challenges. NOAA's cooperative efforts with States, tribes, and other partners such as The Nature Conservancy help to improve our understanding of and ability to protect listed salmon and the habitats that sustain them. Maintaining the increase provided in fiscal year 2016 to the Atlantic salmon base funding and the propose \$2.338 million proposed increase to Pacific salmon will allow NOAA to enhance recovery efforts including monitoring, fish passages, hatchery operations, and stakeholder engagement.

NATIONAL OCEAN SERVICE

Coastal Management Grants: The Nature Conservancy supports the President's request of \$90.646 million. Our Nation's coastal areas are vital to our economy and our way of life. The narrow area along our coasts is home to approximately 163 million people and coastal economies contribute over 45 percent of our gross domestic

product. The \$15 million proposed increase in competitively awarded Regional Coastal Resilience Grants will provide the resources and tools to build coastal resilience to avoid costly Federal disaster assistance and sustain healthy fisheries, maintain robust tourism opportunities, provide for increased shipping demands, and other coastal industries. The inaugural funding solicitations for the grants combined into this proposal drew in 196 applications with \$151 million in funding requests, nearly 16 times the available funding, demonstrating a significant need for these grants. Coastal communities have clearly shown that they are ready to leverage this funding to take proactive measures to protect their way of life. If the subcommittee does combine the two grant programs as proposed, it should ensure the full range of eligible activities be maintained going forward. Additionally, the Nature Conservancy has worked with NOAA through the Digital Coast partnership to develop decision support tools and techniques that help communities understand and reduce risk and build resilience. By sharing the results of the work done through these grants and the Digital Coast partnership across Federal, State, and tribal agencies, industry, and with non-governmental organizations can increase our collective ability to understand and incorporate into decisionmaking complex coastal economic, social, and ecological needs.

Coral Reef Program: The Nature Conservancy supports no less than the President's request of \$26.1 million. The decline of coral reefs has significant social, economic, and ecological impacts on people and communities in the United States and around the world. The Conservancy works with NOAA's Coral Reef Conservation Program under a competitively awarded, multi-year cooperative agreement to address the top threats to coral reef ecosystems: climate change, overfishing, and land-based sources of pollution. Together we develop place-based strategies, measure the effectiveness of management efforts, and build capacity among reef managers globally.

Coastal Zone Management and Services: The Nature Conservancy supports the President's request of \$53.847 million. NOAA's data, research, and monitoring of coastal and marine systems provide data and decision-support tools that inform the safe operations of industry, prioritize habitats for restoration, and advance science-based management decisions. The administration has requested a \$5 million increase for Ecosystem-based Solutions for Coastal Resilience. Improving our ability to incorporate natural infrastructure into coastal protection efforts before and after storms can help communities achieve multiple benefits such as improving fisheries productivity and coastal water quality. The proposed \$4.006 million increase for Capacity to Respond to Extreme Events will improve modeling and observations and increased technical assistance to coastal communities to help reduce their risk to coastal storms and extreme weather, ultimately saving Federal disaster response and recovery expenditures. This will be further leverage by the proposed \$2 million increase for the AmeriCorps' Resilience Corps Pilot Program Training and Technical Assistance. Decision support tools and increasing capacity within communities are cost-effective mechanisms to enable the implementation of resilience strategies.

National Estuarine Research Reserve System: The Nature Conservancy supports the President's request of \$23 million. The National Estuarine Research Reserve System (NERRS) partners with States and territories to ensure long-term education, stewardship, and research on estuarine habitats. Atlantic, Gulf, Pacific, Caribbean and Great Lakes reserves advance knowledge and stewardship of estuaries and serve as a scientific foundation for coastal management decisions.

Sanctuaries and Marine Protected Areas: The Nature Conservancy supports the President's request of \$49.8 million. National marine sanctuaries support economic growth and hundreds of coastal businesses in sanctuary communities, preserve vibrant underwater and maritime treasures for Americans to enjoy, and provide critical public access for ocean recreation, research, and education.

Thank you for this opportunity to share the Nature Conservancy's priorities. We would be pleased to provide the subcommittee with additional information on any of the Conservancy's activities.

[This statement was submitted by Stephanie Bailenson, Senior Policy Advisor for Oceans & Coasts.]

PREPARED STATEMENT OF THE NORTHWEST INDIAN FISHERIES COMMISSION

Mr. Chairman and members of the subcommittee, my name is Lorraine Loomis and I am the Chair of the Northwest Indian Fisheries Commission (NWIFC). The NWIFC is comprised of the 20 tribes that are party to the *United States v. Wash-*

ington¹ (*U.S. v. Washington*). We are providing testimony for the record in support of funding for the National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) for the fiscal year 2017 appropriations.

SUMMARY OF FISCAL YEAR 2017 APPROPRIATIONS REQUESTS

- \$110.0 million for the Pacific Coastal Salmon Recovery Fund (NOAA/NMFS).
- \$14.7 million for the Pacific Salmon Treaty, including \$3.0 million for the 2008 Chinook Salmon Agreement (NOAA/NMFS).
- \$20.3 million for the Mitchell Act Hatchery Programs (NOAA/NMFS).

We are generally pleased with the President's fiscal year 2017 budget request but much more needs to be done. The natural resources that we depend on are vital to our tribal communities, economies and jobs. The land and the many natural resources we depend on are a necessity for our communities to thrive.

The continued loss and degradation of the salmon habitat continues to hamper our salmon recovery efforts. The western Washington treaty tribes brought this concern to the Federal Government in our Treaty Rights at Risk (TRAR) initiative almost 5 years ago, which ultimately threatens our tribal treaty rights. The Federal Government has the obligation and authority to ensure both the recovery of salmon and the protection of tribal treaty rights. These constitutionally protected treaties, the Federal trust responsibility and extensive case law, including the *U.S. v. Washington* decision, all support the role of tribes as natural resource managers, both on and off reservation. The issues we put forth in our TRAR has been slow to create any change in the manner in which Federal agencies operate. It has not been enough to change the trajectory of salmon recovery in our region from a negative to a positive direction.

Salmon has always been the foundation of tribal cultures, traditions and economies in western Washington. Wild salmon and their habitat continue to decline despite massive reductions in harvest and a significant investment in salmon recovery and habitat restoration. However, fulfilling these Federal obligations is not an option and these investments must continue as we work to recover the salmon populations.

In Washington State, we have developed a successful co-management partnership between the Federal, State and tribal governments. Tribes seize every opportunity to coordinate with other governments and non-governmental entities to avoid duplication, maximize positive impacts, and emphasize the application of ecosystem-based management. This collaboration has helped us to deal with many problems, and as sovereign nations, we will continue to participate in resource recovery and habitat restoration with the State of Washington and the Federal Government because we understand the great value of such cooperation.

Hatchery production also continues to be a critical component in fulfilling these treaty-reserved rights and play a vital role in the management of our fisheries. In addition to our habitat concerns, the hatchery systems in the State of Washington are under attack by third party litigation due to the lack of approved Hatchery and Genetic Management Plans (HGMPs) under the Endangered Species Act (ESA). The problem will continue until the National Marine Fisheries Service and U.S. Fish and Wildlife Service have completed their ESA determinations. Resources and immediate action is needed to address the current backlog of HGMPs so that our communities are not further impacted by loss of their fisheries.

To address these many concerns adequate funding is necessary for hatchery production and salmon habitat restoration. The programs we support provide the necessary salmon production and assists tribes in the implementation of salmon recovery plans that moves us in the direction of achieving the recovery goals, which is a direct request in our TRAR initiative. As Congress considers the fiscal year 2017 budget, we ask you to consider our requests that are further described below.

JUSTIFICATION OF REQUESTS

Provide \$110.0 million for NOAA Pacific Coastal Salmon Recovery Fund.

We respectfully request \$110.0 million, an increase of \$45.0 million over the President's fiscal year 2017 request of \$65.0 million. The fiscal year 2016 appropriations provided a total of \$65.0 million. These funds have decreased from the peak of \$110.0 million in fiscal year 2002. We continue to support the original congressional intent of these funds that would enable the Federal Government to fulfill its obligations to salmon recovery and the treaty fishing rights of the tribes.

¹*United States v. Washington*, Boldt Decision (1974) reaffirmed Western Washington Tribes' treaty fishing rights.

The PCSRF is a multi-state, multi-tribe program established by Congress in fiscal year 2000 with a primary goal to help recover wild salmon throughout the Pacific coast region. The PCSRF supports projects that restore, conserve and protect Pacific salmon and steelhead and their habitats. PCSRF is making a significant contribution to the recovery of wild salmon throughout the region by financially supporting and leveraging local and regional efforts. Salmon restoration projects not only benefit fish populations and their habitat but provides much needed jobs for the local communities.

The tribes' overall goal in the PCSRF program is to restore wild salmon populations while the key objective is to protect and restore important habitat in Puget Sound and along the Washington coast. This is essential for western Washington tribes to exercise their treaty-reserved fishing rights consistent with *U.S. v. Washington* and *Hoh v. Baldrige*² and also promotes the recovery of Endangered Species Act (ESA) listed species and other salmon populations. The tribes have used these funds to support the scientific salmon recovery approach that makes this program so unique and important.

These funds support policy and technical capacities within tribal resources management to plan, implement, and monitor recovery activities. In addition to watershed restoration and salmon recovery work they also help fund fish hatchery reform efforts to allow for the exercise of tribal treaty fishing rights. Hatchery projects are a critical component of salmon recovery as they help reduce the impacts of listed stocks. It is for these reasons that the tribes strongly support the PCSRF.

Provide \$14.7 million for NOAA Pacific Salmon Treaty, including \$3.0 million associated with the 2008 Chinook Salmon Agreement

We support the Pacific Salmon Commission (PSC)/U.S. Section's request of \$14.7 million, an increase of \$3.4 million over the President's fiscal year 2017 request of \$11.3 million. The fiscal year 2016 appropriations provided a total of \$11.3 million. We also support as part of their request \$1.5 million for the Puget Sound Critical Stock Augmentation Program and \$1.5 million for the Coded Wire Tag (CWT) Program as required by the 2008 PST Chinook Annex Agreement.

The Puget Sound Critical Stock Augmentation Program provides funding for the operation and maintenance costs for the hatchery augmentation programs established for Dungeness, Stillaguamish, and Nooksack Chinook. These hatchery efforts were initiated in connection with the 2008 Chinook Agreement of the U.S./Canada Pacific Salmon Treaty (PST) as the conservation needs of these populations could not be met by harvest restriction actions alone. The CWT funding allows for continued maintenance and efficiency improvements of the coast-wide CWT program. This is essential for the sustainability and management of our fisheries resources. Currently there is not enough funding allocated to carry out the requirements of the PST, which causes the PSC to not be able to perform all of its responsibilities required in the treaty and its Chinook and coho annexes.

The PST was implemented in 1985 through the cooperative efforts of tribal, State, U.S. and Canadian governments, and sport and commercial fishing interests. The PSC was created by the United States and Canada to implement the treaty, which was most recently updated in 2008. The PSC establishes fishery regimes, develops management recommendations, assesses each country's performance and compliance with the treaty, and is the forum for all entities to work towards reaching an agreement on mutual fisheries issues.

Adult salmon returning to most western Washington streams migrate through U.S. and Canadian waters and are harvested by fisherman from both countries. For years, there were no restrictions on the interception of returning salmon by fishermen of neighboring countries. The 2008 update of the treaty gave additional protection to weak runs of Chinook salmon returning to Puget Sound rivers. The update also provided compensation to Alaskan fishermen for lost fishing opportunities, while also funding habitat restoration in the Puget Sound region.

Provide \$20.3 million for NOAA Mitchell Act Hatchery Programs

We support the President's fiscal year 2017 request of \$20.3 million for the Mitchell Act Hatchery Programs. The fiscal year 2016 appropriations provided a total of \$20.2 million. Funding is provided for the operation and maintenance of hatcheries that release between 50 and 60 million juvenile salmon and steelhead in Oregon and Washington. This program has historically provided fish production for tribal treaty and non-tribal commercial and recreational fisheries in the Columbia River, and also contributes to ocean fisheries from Northern California to Southeast Alas-

²*Hoh v. Baldrige*—A Federal court ruling that required fisheries management on a river-by-river basis.

ka. Overall production from these hatcheries has been reduced from more than 110 million to fewer than 60 million fish due to inadequate funding. The Mitchell Act hatchery production is intended to mitigate for fish and habitat loss caused by the Federal hydropower dam system on the Columbia River and provides important economic and cultural benefits.

Funding is provided for improving the Mitchell Act Hatchery Programs to ensure that both conservation and harvest goals are met while contributing to sustainable fisheries and meeting the tribal treaty obligation. It is especially important to us in that they provide significant fish production for harvest opportunities for tribal treaty fisheries along the Washington coast. Providing adequate funding to maintain the current production levels from the Mitchell Act hatcheries on the Columbia River is important as this production not only supports coastal salmon fisheries but dampens the impact of Canadian and Alaskan ocean fisheries under the terms of the PST Chinook Annex on Puget Sound and coastal stocks.

Substantial changes have been made, and will continue to be required of the Mitchell Act hatcheries, due to the application of the ESA throughout the Columbia Basin. Mitchell Act hatcheries are currently implementing hatchery reform efforts to ensure they are operated using the best scientific principles that will contribute to sustainable fisheries and the recovery of naturally spawning populations of salmon and steelhead. Adequate funding will allow these facilities to be retrofitted to meet current ESA standards as identified through the hatchery reform process.

CONCLUSION

The treaties and the treaty-reserved right to harvest are the supreme law of the land under the U.S. Constitution. It is critically important for Congress and the Federal Government to do even more to coordinate their efforts with State and tribal governments. We need your continued support in upholding the treaty obligations and fulfilling the trust responsibility of those treaties in order for tribes to be successful.

We respectfully urge you to continue to support our efforts to protect and restore our natural resources that in turn will provide for thriving economies. Thank you.

PREPARED STATEMENT OF THE OCEAN CONSERVANCY

Thank you for this opportunity to provide Ocean Conservancy's recommendations for fiscal year 2017 funding for NOAA. Ocean Conservancy has worked for over 40 years to address threats to the ocean through sound, practical policies that protect our ocean and improve our lives. We support funding for NOAA at or above the President's request of \$5.8 billion, and we support balanced investments across NOAA's atmospheric and oceanic missions. We recommend the following funding levels for specific programs.

Account, Program or Activity	Fiscal year 2016 enacted	Fiscal year 2017 PB request	Fiscal year 2017 OC request
Operations Research and Facilities			
National Ocean Service:			
Coastal Science and Assessment:			
Marine Debris	\$6 m	\$6 m	\$8 m
Ocean and Coastal Mgmt. and Services:			
Coastal Management Grants: Regional Coastal Resilience Grants	\$5 m	\$20 m	\$20 m
National Oceans and Coastal Security Fund	\$10 m	\$10 m
National Marine Fisheries Service:			
Marine Mammals, Sea Turtles, & Other Species	\$110.246 m	\$125.107 m	\$125.107 m
Fisheries Data Collections, Surveys and Assessments ..	\$163.271 m	\$164.749 m	\$164.749 m
Office of Oceanic and Atmospheric Research:			
Regional Climate Data and Information	\$38 m	\$52.703 m	\$52.703 m
NOAA Arctic Research Program	\$4.255 m increase	\$4.255 m increase
Climate Competitive Research	\$60 m	\$66.250 m	\$66.250 m
Impacts of Climate on Fish Stocks	\$5.83 m increase	\$5.83 m increase
Integrated Ocean Acidification	\$10 m	\$21.775 m	\$30 m
Office of Marine and Aviation Operations:			
Marine Operations & Maintenance	\$178.838 m	\$184.376 m	\$184.376 m

Marine Debris: \$8 million

Marine debris, particularly plastic waste pollution, has become one of the most widespread pollution problems facing the world's oceans and waterways. It has serious effects on the marine environment and the economy, causing impacts from wildlife entanglement, ingestion and ghost fishing to navigational hazards and vessel damage. To address this growing problem, NOAA's Marine Debris program conducts reduction, prevention, and research activities through grants and engaging in strategic partnerships. The program is authorized at \$10 million and was funded at \$6 million in fiscal year 2016. More research is needed in four critical areas (the sources of plastic waste in the ocean, their distribution, the fates of those materials, as well as their impacts) to support data-driven policy solutions to prevent plastic from entering the environment. We support an increase in funding to \$8 million in order to meet these urgent research needs.

Regional Coastal Resilience Grants: \$20 million

The resilience of our coastal communities is a critical mission for NOAA and the National Ocean Service. Resilient means more than just storm-ready. Truly resilient communities are able to effectively adapt to changing economic, social, and environmental conditions over time and effectively respond to new challenges and threats to infrastructure, community well-being, and ecosystem health. Comprehensive resilience for coastal communities and economies can only be achieved at the regional level when communities, States, and Federal agencies come together to share their collective knowledge and establish a unified direction. Regions must evaluate a range of changing ocean conditions such as chemistry and ecology, sea level rise and coastal inundation, weather hazard risks, new ocean uses, and increasing use conflicts. Competitive Regional Coastal Resilience Grants from NOAA support work to address these regional challenges, ensuring that ocean priorities are set with fine-resolution, localized data to enable regional, State, and local implementation of resilience actions. We support an increase in funding to \$20 million in order to meet significant demand for these grants, as demonstrated by more than \$150 million in grant applications last year.

National Oceans and Coastal Security Fund: \$10 million

When the fiscal year 2016 Omnibus Appropriations Act passed in December, it established the National Oceans and Coastal Security Fund (NOCSEF). This fund at the National Fish and Wildlife Foundation is to be jointly managed with NOAA. Dollars that flow through the fund will be spent on research and activities to better understand and utilize ocean and coastal resources and coastal infrastructure. This type of fund was first conceived in 2004 by the U.S. Commission on Ocean Policy. After 10 years of advocating for such a fund, Ocean Conservancy and others in the ocean community are pleased and relieved to finally see it created. We support the request in NOAA's budget for \$10 million to capitalize the NOCSF so this program can begin its important work.

Gulf of Mexico Restoration

Restoration of the Gulf of Mexico in the wake of the BP *Deepwater Horizon* oil disaster and years of environmental stressors is only in its early stages. It is critical that NOAA's expertise be deployed effectively to support and carry out restoration efforts. We support the following funding in NOAA's budget to ensure the success of Gulf restoration through the RESTORE Act and the Natural Resource Damage Act:

—Funding for NOAA's Restoration Center as needed

NOAA's Restoration Center is providing key coordination and expertise to government-wide restoration efforts. For example, it is clear that the Restoration Center will serve as a center of gravity for the Open Ocean Trustee Implementation Group. In order to effectively lead this effort, the Restoration Center must be sufficiently resourced and it must also have the support and services needed from other parts of NOAA.

—Marine Mammals, Sea Turtles and Other Species: \$125.107 million

NOAA's work to protect living marine resources is important nationwide, but is especially critical in the Gulf region. We support the requested \$13.452 million increase for Marine Mammals in particular because it will support increased capacity for restoration efforts in the Gulf region. In addition, we support continued funding for the John H. Prescott Marine Mammal Rescue Assistance Grant Program, which funds the first responders for sick or dying marine mammals.

Fisheries Science and Management

We support funding for programs that implement the Magnuson-Stevens Fishery Conservation and Management Act. As we review the Act for reauthorization, it is important to note that the Act is working—NOAA has made great strides towards ending overfishing and continued investments in these programs are needed. In particular, we support the following:

—*Fisheries Data Collections, Surveys and Assessments: \$164.749 million*

This recently consolidated line supports a host of activities critical to MSA implementation. For example, it provides resources for fisheries managers to assess priority fish stocks, implement the requirement for annual catch limits (ACLs), and ensure the successful recovery of overfished populations. Stock assessments give fishery managers greater confidence that their ACLs will avoid overfishing while providing optimal fishing opportunities. We also support funding for the Marine Recreational Information Program. Despite their often sizeable economic and biological impacts, much less data are collected from recreational saltwater fisheries than commercial fisheries due to the sheer number of participants and limited sampling of anglers' catches. The low level of data collection and lack of timely reporting of data in these fisheries is a large source of uncertainty and has become a flashpoint for controversy in regions where catch restrictions have been adopted to rebuild overfished stocks, particularly in the Southeast. By all accounts, improved sampling and timelier reporting of catch data are needed for successful management of marine recreational fisheries.

—*Electronic Monitoring and Reporting*

We support funding for electronic monitoring and reporting for nationwide efforts. In particular we support funding that goes to the Gulf of Mexico region, where managers need electronic monitoring to keep track of catch and prevent overruns in the red snapper fishery, there is significant need for additional funding. Based on the findings of the November 2014 "Technical Subcommittee Report to the South Atlantic and Gulf of Mexico Fishery Management Councils: Recommendations for Electronic Logbook Reporting" NOAA's requested increases are only a portion of what is needed to support effective electronic monitoring. The Gulf of Mexico region alone will require more than \$5 million annually to support electronic monitoring.

—*Impacts of Climate on Fish Stocks: \$5.83 million increase*

We support NOAA's request for increased funding in the Office of Oceanic and Atmospheric research to provide research grants that will provide new information and solutions to increasing challenges as important fisheries face a changing ocean due to climate change.

—*Marine Operations and Maintenance: \$184.376 million*

Marine Operations and Maintenance should be funded at or above the President's request level of \$178.838 million. Days at sea funded by this line are functionally tied to fishery stock assessments, and the two programs must be viewed together.

Integrated Ocean Acidification: \$30 million

In recent years, scientists have raised the alarm about ocean acidification—a process whereby ocean waters' absorption of carbon dioxide emissions alters marine acidity. These changes can have far-reaching consequences for marine life, including economically important species like shellfish. For example, the shellfish industry in the Pacific Northwest has been devastated in recent years as increasingly acidic water impacted oyster hatcheries, nearly wiping out several years-worth of oyster "seed."

Given the magnitude of the potential impacts of ocean acidification we believe this area warrants not the increased research investment proposed in the President's fiscal year 2017 request (\$21.775 million), but rather the higher \$30 million proposed in fiscal year 2016. We greatly appreciate last year's appropriation of \$10 million for fiscal year 2016, and believe the increase in funding is critical to allow NOAA to do more than just keep existing programs running and continue assessing acidification effects on commercial and recreational marine species. With additional funding NOAA can improve and expand regional ocean acidification experimental facilities and take on additional projects, like developing synthesis and visualization products that stakeholders are asking for. By increasing the programmatic funding for Integrated Ocean Acidification, NOAA will be able to take these concrete actions to more effectively tackle the economic and local implications of ocean acidification

and prepare for future strategies that will protect our Nation's key ocean and coastal economies.

NOAA Arctic Research Program: \$4.255 million increase

We support NOAA's request to make investments we need now to be prepared for economic and ecological challenges of a changing Arctic. Ocean Conservancy supported NOAA's requested increases for Arctic programs last fiscal year as well, but only a portion of the additional funding requested for the Arctic was appropriated. Considering the ongoing U.S. chairmanship of the Arctic Council, it is even more important now that investments be made to demonstrate U.S. leadership in the Arctic. Temperatures in the Arctic are warming at twice the rate of the global average and seasonal sea ice is diminishing rapidly. Funding to expand and improve NOAA's Arctic Observing Network is critical to track and understand these profound changes and provide products that inform industries and decision-makers and support our ability to adapt.

PREPARED STATEMENT OF THE PLANETARY SOCIETY

Humankind is on the cusp of a scientific revolution. For the first time in history, we have the ability to actively search for new biology in habitable environments beyond Earth. Whether or not we choose to pursue this opportunity will be a legacy of our generation.

Mars and Europa are two of the most intriguing astrobiological destinations in our solar system and are proposed as the top two most important destinations for flagship missions in the National Academies' *Visions and Voyages for Planetary Science* decadal survey report. The ancient habitable environment of Mars may have preserved signs of life, should it have ever existed there. Europa, with its ocean of liquid water, abundance of necessary chemicals and nutrients, and heat created from interaction with Jupiter's enormous gravitational pull, is a prime candidate for an environment capable of supporting life now.

The search for life isn't the only reason to explore. Knowledge of our solar system's origins and evolution is revealed through the information returned by robotic spacecraft. The extremes in climate represented by Venus and Mars can help us understand changes to our own climate. And the act of exploration itself is a sign of an open, curious culture committed to the pursuit of knowledge. Recent triumphs in exploration by NASA have delighted the public with scientific wonders in our solar system, revealing active glaciers on Pluto, strange bright spots on the asteroid Ceres, flowing water-brines on Mars, and the seasons on Titan, to name only a few. NASA has achieved these discoveries by maintaining steady investment in its Planetary Science Division in previous decades, though in recent years it has been subject to cuts proposed by the White House, though mitigated regularly by Congress.

A healthy and vibrant space exploration program is an excellent investment to energize, engage, and inspire the next generation of scientists, engineers, educators, as well as our citizens. Space missions contribute to thousands of high-tech jobs in the aerospace industry, at research laboratories, and in universities around the country. They stimulate the best and brightest with interesting and meaningful scientific and technical challenges that make our Nation stronger and more competitive. NASA's exploration missions have repeatedly demonstrated their power in engaging and exciting the public imagination.

The human spaceflight efforts of NASA also face a critical decision point that will determine our legacy to future generations. Specifically, how NASA will extend human exploration beyond Earth orbit. The Planetary Society strongly supports Mars as the destination for human exploration, and has encouraged NASA to develop a clear, executable, and affordable plan to achieve this goal over the next several decades. An orbit-first architecture, where humans would first orbit Mars in 2033 and then land later in the decade, is one highly promising concept that could fit within the current budget with inflationary growth. NASA's new start on a cis-lunar habitat, included in the fiscal year 2017 request, is a critical step on the path to humans on Mars.

The Planetary Society notes that the administration's fiscal year 2017 budget request for NASA is a step in the right direction compared to recent years. However, the Society is disappointed that the proposal falls short, by roughly \$260 million, of the level Congress provided last year, and singles out the Planetary Science Division as the lone science division facing cuts in 2017. These numbers look even worse without the unlikely addition of new "mandatory" spending sources proposed in the budget.

In addition to maintaining growth in the other science divisions, we urge the subcommittee to restore the Planetary Science Division to fiscal year 2016 levels plus growth for inflation—to at least \$1.71 billion.

While there are positive aspects of the administration's request, a concern for the Society is the proposed delay and overall lack of commitment in the budget for the mission to Europa. Last year, Congress made clear that NASA was to move forward with a Europa multiple flyby spacecraft and a lander that meets the science goals of the decadal survey, along with a 5-year budget plan to support a 2022 launch on the Space Launch System (SLS). However, the administration's plan ignores the congressional mandate. Instead, NASA proposes to cut funding for Europa in fiscal year 2017 by \$125 million and delay the mission until the late 2020s. The Society strongly supports the Europa approach spelled out in the Fiscal Year 2016 Appropriations Act and urges the subcommittee to stay the course.

NASA's infrastructure here on Earth, particularly the Deep Space Network (DSN), is crucial for the successful exploration of our solar system and the cosmos. We are concerned that recent budget cuts to the DSN will impact the reliability of the network and potentially impact the safety of our deep space assets. Plutonium-238 infrastructure is well-funded in the request, and we thank the administration and Congress for the continued support for restoring this critical capability.

We are pleased to see that the administration included funds for extended operations of all ongoing planetary science missions, though we note that the Mars Opportunity rover, Mars Express, and Mars Odyssey missions depend on new mandatory funding sources for their continued operations.

The Society strongly supports a robust Mars exploration program, both human and robotic. The upcoming Mars 2020 rover is a critical step toward the scientific community's top priority of Mars sample return, as well as an important technology demonstration for entry, descent, and landing and in-situ resource utilization experiments that will inform future human exploration. Among its many scientific goals, the Mars 2020 mission will collect and store a cache of samples on the surface of the red planet. However, NASA has yet to define a plan for follow-on missions to retrieve these samples and return them to Earth, or even how it will continue to support ground assets with a future scientific/telecommunications orbiter. We urge the subcommittee to press NASA to clarify its plan to return these martian samples to Earth in the 2020s.

The Society is concerned that proposed cuts to the Space Launch System (SLS) program could impact the availability of the new rocket. SLS is the foundation of the transportation system for sending humans to Mars, as well as a key enabler for a sustained outer planets exploration program, to Europa, Enceladus, and other destinations. Adequate funding should be provided to maintain SLS on the most efficient development timeline.

Should Congress continue the budgetary momentum it has sustained for NASA in recent years, all major programs in human spaceflight—SLS, Orion, and Commercial Crew—could be funded at needed levels while maintaining the growth the science divisions and restoring Planetary Science to \$1.71 billion in fiscal year 2017. This is a growth of 5 percent, the same as in fiscal year 2016, bringing NASA's top-line to \$20.3 billion.

With the upcoming transition in Presidential administrations, we urge Congress and the administration to build on the broad bipartisan support for the Nation's space program and set NASA on a steady course forward. We believe humankind is on the brink of revolutionary discoveries, if we choose to make it happen.

PREPARED STATEMENT OF THE POPULATION ASSOCIATION OF AMERICA/ASSOCIATION
OF POPULATION CENTERS

Thank you, Chairman Shelby, Ranking Member Mikulski, and other distinguished members of the subcommittee, for this opportunity to express support for the Census Bureau, the National Science Foundation (NSF), and the Bureau of Economic Analysis (BEA). These agencies are important to the Population Association of America (PAA) and Association of Population Centers (APC), because they provide direct and indirect support to population scientists and the field of population, or demographic, research overall. In fiscal year 2017, we urge the subcommittee to adopt the following funding recommendations: Census Bureau, \$1.6 billion, consistent with the administration's request; National Science Foundation (NSF), \$ 8 billion, consistent with the recommendation of the Coalition for National Science Funding; and, Bureau of Economic Analysis, \$110.7 million, consistent with the administration's request.

The PAA and APC are two affiliated organizations that together represent over 3,000 social and behavioral scientists and almost 40 federally funded population research centers nationwide that conduct research on the implications of population change. Our members, which include demographers, economists, sociologists, and statisticians, conduct scientific research, analyze changing demographic and socio-economic trends, develop policy recommendations, and train undergraduate and graduate students. Their research expertise covers a wide range of issues, including adolescent health and development, aging, health disparities, immigration and migration, marriage and divorce, education, social networks, housing, retirement, and labor. Population scientists compete for funding from the NSF and rely on data produced by the Nation's statistical agencies, including the Census Bureau and BEA, to conduct research and research training activities.

THE CENSUS BUREAU

The Census Bureau is the premier source of data regarding U.S. demographic, socio-economic, and housing characteristics. While PAA/APC members have diverse research expertise, they share a common need for access to accurate, timely data about the Nation's changing socio-economic and demographic characteristics that only the U.S. Census Bureau can provide through its conduct of the decennial census, American Community Survey (ACS), and a variety of other surveys and programs.

We recognize that the fiscal year 2017 request is \$300 million more than the agency's fiscal year 2016 funding level. However, as you know, the Census Bureau's budget is cyclical, and fiscal year 2017 is a pivotal year in the 2020 Census planning cycle. Next year, the Census Bureau must complete production of interoperable systems to implement a re-designed Census as well as initiate the Local Update of Census Addresses program in partnership with State and local governments, finalize questionnaire content for congressional approval, and acquire Regional Census Centers. Additionally, the Bureau will be preparing to perform an End-to-End Readiness test in 2018, requiring completion of the new information technology systems. Other ambitious tasks on the agency's "to do" list include finalizing decisions on use of administrative records—data collected through other government programs, such as IRS, Medicaid, and Postal Service—to remove vacant and nonexistent addresses from the costly field follow-up universe and to enumerate some households that do not self-respond.

These ambitious plans, if supported, would not only enhance the conduct and outcome of the 2020 Census, but could also make it more cost effective, saving an estimated \$5 billion over the lifecycle cost of the census. Conversely, without sufficient resources to pursue these innovations, the bureau is likely to rely on traditional and far more costly census methods—an outcome that would jeopardize the accuracy of the 2020 Census and most certainly preclude the agency from abiding by Congress' directive to keep the cost of the next census at the 2010 level.

With respect to the ACS, the PAA and APC urge the subcommittee to oppose any attempts that may occur during consideration of the fiscal year 2017 Commerce, Justice, Science Appropriations bill to change the mandatory response status of the ACS. In 2003, the Census Bureau conducted a test on a voluntary ACS. They found that survey costs increased by approximately \$60 million (\$90 in real dollars) and response rates decreased by an estimated 20 percent. Canada's recent experience of moving from a mandatory to voluntary National Household Survey (NHS), the Canadian equivalent of the ACS, is a cautionary example. The overall response rate dropped from 94 percent to under 69 percent, increasing costs by \$22 million as Statistics Canada increased the sample size to make up for lower response. Despite these efforts, Statistics Canada could not produce reliable socio-economic estimates for 25 percent of all "places" in the Nation—mostly small communities and rural areas—alarming data users in the private and public sectors alike. Given the obvious failure of the voluntary NHS, within days of taking office, Canadian Prime Minister Justin Trudeau reinstated the mandatory NHS. The United States should heed Canada's example and maintain the integrity of the mandatory ACS.

NATIONAL SCIENCE FOUNDATION (NSF)

The mission of NSF is to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. Understanding the implications of complex population dynamics is vital to the agency's mission. The Directorate of Social, Behavioral and Economic (SBE) Sciences is the primary source of support for the population sciences within the NSF. The Directorate funds critical large-scale longitudinal surveys, such as the *Panel Study of Income Dynamics*, that inform pressing policy decisions and enable policy makers to make effective

decisions. Other projects, such as the *Social Observatory Coordinating Network*, integrate social science and health research, linking community and national data to improve population health.

NSF is the funding source for over 20 percent of all federally supported basic research conducted by America's colleges and universities, including basic behavioral and social research. Moreover, the SBE Directorate funds more than half of the university-based social and behavioral sciences research in the Nation.

PAA and APC, as members of the Coalition for National Science Funding, request that the subcommittee provide NSF with \$8 billion. Since 2010, the agency has lost ground in real dollars, notwithstanding the modest increase appropriated in the fiscal year 2016 omnibus bill. The funding level recommended for fiscal year 2017 will enable the NSF SBE Directorate to continue its support of social science surveys and a robust portfolio of population research projects. The NSF also continues to focus on interdisciplinary research initiatives, recognizing that social and behavioral factors are intrinsic to many critical areas of research—for example the ongoing *Understanding the Brain* initiative. Funding at this level will allow NSF to continue funding the most promising grant applications that promote transformational and multidisciplinary research. Steady and sustainable real growth will enhance the Nation's capability to make new discoveries, leading to new innovations.

BUREAU OF ECONOMIC ANALYSIS (BEA)

While a relatively small agency, the BEA is enormously important to understanding our multi-trillion dollar economy. A diverse range of data users rely on BEA data: Federal, State and local government officials use BEA data to inform economic and fiscal policy; businesses use BEA data to guide investment decisions; and scientists use BEA data to understand and interpret trends in labor, employment, and national and international economies.

PAA and APC are very grateful for the increase BEA received in fiscal year 2016, reversing the decline in inflation-adjusted dollars to its budget since fiscal year 2010. We join other national organizations to urge the subcommittee to sustain BEA by providing it with a modest increase in fiscal year 2017, bringing the total to \$110.7 million. With this support, BEA could pursue new initiatives, including the Regional Economic Dashboard and the Accelerating and Improving Quality of Economic Indicators, which will improve our understanding of changing economic dynamics.

Thank you for considering our requests and for supporting Federal programs that benefit the population sciences.

PREPARED STATEMENT OF THE REGIONAL INFORMATION SHARING SYSTEMS (RISS) NATIONAL POLICY GROUP

The mission of the Regional Information Sharing Systems (RISS) is to assist local, State, Federal, and tribal criminal justice partners by providing adaptive solutions and services that facilitate information sharing, support criminal investigations, and promote officer safety. With the ongoing threats to safety and security, it is important to adequately fund proven and trusted programs such as RISS. It is respectfully requested that RISS be funded in fiscal year 2017 at \$48.5 million.

RISS is composed of six regional centers and the RISS Technology Support Center. RISS works regionally and nationwide to respond to the unique crime problems of each region while strengthening the country's information sharing environment. More than 9,000 local, State, Federal, and tribal law enforcement and public safety agencies are members of RISS. RISS supports efforts against organized and violent crime, gang activity, drug activity, terrorism, human trafficking, identity theft, cybercrime, and other regional priorities. Hundreds of thousands of law enforcement officers and criminal justice professionals use RISS services and resources every day to assist with their efforts in fighting crime.

For more than 40 years, RISS has demonstrated its value and benefit to the criminal justice and law enforcement community (visit www.riss.net/Impact to view shared successes). RISS provides critical investigative and analytical services, secure access to intelligence systems and investigative data from all levels of government, technology and field-based solutions, and essential officer safety resources.

RISS—AN EXCELLENT RETURN ON INVESTMENT FOR OUR NATION

RISS provides diverse and specialized investigative services and resources to help identify, apprehend, and prosecute criminals. Specifically, RISS:

- Develops analytical products, such as specialized charts, crime scene diagrams, telephone toll analysis products, and financial analysis reports.
- Provides digital forensics and audio/video enhancements.
- Loans specialized investigative equipment, such as specialized cameras, recorders, and other devices.
- Researches intelligence and investigative resources and provides a comprehensive report of findings to officers.
- Provides one-on-one technical support through RISS's field services staff.
- Provides confidential funds to assist officers with undercover operations and buy-busts.
- Trains thousands of law enforcement officers on timely and relevant topics, such as emerging crime, officer safety, and investigative techniques.
- Develops publications and law enforcement-sensitive briefings.

Every day, officers are using RISS to help detect, deter, prevent, and respond to crime problems. Without these services to support law enforcement efforts, narcotics, stolen property, and other contraband, as well as violent offenders, gang members, and other criminals, might still be on our streets. Over the last 10 years, officers leveraging RISS's services arrested almost 44,000 offenders and seized more than \$625.9 million in narcotics, property, and currency. The resources and services offered by RISS are crucial to ensure that RISS officers and agencies can solve crimes and remove criminals from our communities. The Federal Government has invested in RISS, and RISS has proved to be an excellent return on that investment.

RISS—A SOURCE FOR SECURE AND INNOVATIVE INFORMATION SHARING SOLUTIONS

The ability to share information remains one of the most important factors to help communities address their most pressing criminal justice problems in effective ways. The RISS Secure Cloud (RISSNET) is a sensitive but unclassified (SBU) system that connects disparate systems, provides bidirectional sharing, and offers a single simultaneous search of connected systems. Without access to RISSNET resources and information, multijurisdictional information sharing would become difficult, leads may be lost, and some cases may not be solved timely or at all. Hundreds of resources (most owned by RISS partners) rely on the RISSNET infrastructure to share millions of records among and between law enforcement from all levels. Currently, more than 80 systems are connected or pending connection to RISSNET. More than 39.5 million records are available through these and other RISSNET resources. RISS has developed a number of resources accessible via RISSNET that are critical to the law enforcement community's mission, including the following:

- The RISS Criminal Intelligence Database (RISSIntel) provides for a real-time, online federated search of more than 40 RISS and partner intelligence databases.
- The RISS National Gang Program (RISSGang) consists of an intelligence database, a Web site, and information resources.
- The RISS Automated Trusted Information Exchange (ATIX) provides a secure platform for law enforcement, public safety, first responders, and the private sector to share information.
- The RISSLeads Investigative Web site enables authorized law enforcement officers to post information regarding cases or other law enforcement issues.
- The RISS Officer Safety Web site provides law enforcement and criminal justice users with timely officer safety information and a secure infrastructure to exchange and share officer safety-related information among agencies.
- Secure hosted Web sites enable partners to securely share information and materials. There are more than 30 secure hosted Web sites.

SAVING LIVES AND SOLVING CASES THROUGH OFFICER SAFETY DECONFLICTION

RISS recognized the importance of ensuring the safety of law enforcement officers and, in an effort to further enhance officer safety, developed the RISS Officer Safety Event Deconfliction System (RISSafe). Thousands of agencies and officers use RISSafe every day. Since inception, more than 1,175,800 operations have been entered into RISSafe, resulting in 362,000 identified conflicts. Without the identification of these conflicts, officers might have interfered with another agency's or officer's investigation, links between cases might have been lost, or officers or citizens might have been unintentionally hurt or killed. RISSafe is accessible and monitored on a 24/7/365 basis and available at no cost to all law enforcement agencies, regardless of RISS membership. Currently, 28 RISSafe Watch Centers are operational, 22 of which are operated by organizations other than RISS. These organizations have invested resources to support this critical officer safety program.

In May 2015, the three nationally recognized event deconfliction systems—Case Explorer, SAFETNet, and RISSafe—were integrated. The partners worked in collaboration to accomplish this goal with the help of many vested partners, including the Bureau of Justice Assistance (BJA); the Office of the Program Manager, Information Sharing Environment (PM-ISE); the U.S. Drug Enforcement Administration; the High Intensity Drug Trafficking Areas (HIDTA); and many others. This milestone further strengthens officer and citizen safety across the country.

RISS—AN ESSENTIAL PARTNER IN NATIONWIDE INITIATIVES

RISS supports Federal and nationwide initiatives that help enhance and expand efficient and effective information sharing among the criminal justice community. Examples of RISS's Federal and nationwide partnerships include:

- U.S. Department of Justice
- Assured SBU Interoperability Initiative
- Global Justice Information Sharing Initiative
- National Network of Fusion Centers
- Federal Law Enforcement Training Centers
- INTERPOL
- National Motor Vehicle Title Information System
- United States Secret Service's Targeted Violence Information Sharing System

Many other partnerships have resulted in streamlined processes, increased information sharing and officer access to critical data, safer officers and communities, and the advancement of important technology solutions. Some of those are highlighted below.

As part of the Northeast Fusion Center Intelligence Project, RISS is connecting fusion centers' intelligence systems to RISSIntel via RISSNET. Multiple fusion center systems have been connected to RISSIntel under this project.

Through the Law Enforcement National Data Exchange (N-DEx) and RISS partnership effort, access to N-DEx is becoming available to authorized RISSNET users via the Federal Bureau of Investigation's Law Enforcement Enterprise Portal (LEEP) without an additional username or password. This capability enables officers to obtain information quickly, saves officers' time, streamlines operations, and enhances law enforcement's ability to respond to crime effectively and efficiently.

As foundational members of the SBU Working Group and the National Identity Exchange Federation, the U.S. Department of Homeland Security (DHS) Homeland Security Information Network (HSIN) and RISS have made significant progress in implementing bidirectional secure single sign-on between the two systems. This integration provides a streamlined approach that enables users to quickly and easily access critical information.

BUILDING ON RISS SUCCESSES IN THE FUTURE

At the \$48.5-million level, RISS will be positioned to maintain and build on its successes. Specifically, RISS will:

- Move forward with important technology initiatives in the areas of federation and bidirectional system connections.
- Purchase essential network equipment to maintain and safeguard the RISS secure infrastructure.
- Expand and enhance existing RISS investigative services and RISSNET resources.
- Support RISSafe's 24/7/365 component and continue to work with partners to promote the use of event deconfliction.
- Support Federal efforts and nationwide partnerships to expand information sharing capabilities and available resources to officers and law enforcement personnel.
- Replace and obtain new specialized equipment.
- Support emerging initiatives, such as human trafficking, cybersecurity, and school violence programs.

Funding at \$48.5 million will aid RISS in addressing these important initiatives and leverage proven technology, maximize trusted relationships, and help create a more secure information sharing environment. As criminals grow savvier and technologically advanced and as emerging crime problems arise, law enforcement will continue to seek effective, innovative, and trusted solutions to help them resolve and respond to criminal and terrorist activities. RISS is a necessary component of law enforcement efforts and is the "one-stop shop" to fill officers' needs and help maximize their efforts. RISS is dedicated to ensuring the highest quality in all of its programs.

CONCLUSION

RISS has worked diligently to seek innovative solutions to provide fast, quality-driven support to the law enforcement and public safety communities under reduced funding and is committed to finding solutions to help fill the gaps and move forward. Inadequate funding and support for RISS would significantly weaken the Nation's information sharing environment, hinder investigations, and impact the safety of our officers and our communities. It would be counterproductive to require local and State RISS members to self-fund match requirements or to reduce the amount of BJA discretionary funding. Agencies require more funding to fight the Nation's crime problem. RISS is unable to make up the decrease in funding that a match would cause, for it has no revenue source of its own. RISS is grateful to provide this testimony at your request and appreciates the support this committee continuously provides to the RISS Program.

PREPARED STATEMENT OF RESTORE AMERICA'S ESTUARIES

Restore America's Estuaries is a nonpartisan, nonprofit organization that has been working since 1995 to restore our Nation's greatest estuaries. Our mission is to restore and protect estuaries as essential resources for our Nation. Restore America's Estuaries is an alliance of community-based coastal conservation organizations across the Nation that protect and restore coastal and estuarine habitat. Our member organizations include: American Littoral Society, Chesapeake Bay Foundation, Coalition to Restore Coastal Louisiana, Save the Sound—a program of the Connecticut Fund for the Environment, Galveston Bay Foundation, North Carolina Coastal Federation, EarthCorps, Save The Bay—San Francisco, Save the Bay—Naragansett Bay, and Tampa Bay Watch. Collectively, we represent over 250,000 members nationwide.

As you develop the fiscal year 2017 Commerce, Justice, Science and Related Agencies appropriations bill, Restore America's Estuaries encourages you to provide the funding levels below within the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA) for core programs which significantly support coastal community and ecosystem resilience and local economies:

- \$68.4 million for Habitat Conservation and Restoration
(NOAA: ORF: NMFS: *Habitat Conservation and Restoration*)
- \$10 million for Regional Coastal Resilience Grants
(NOAA: ORF: NOS: *Ocean and Coastal Management and Services: Coastal Management Grants: Regional Coastal Resilience Grants*)
- \$23.9 million for National Estuarine Research Reserve System Operations
(NOAA: ORF: NOS: *Ocean and Coastal Management and Services: National Estuarine Research Reserve System*)
- \$1.7 million for National Estuarine Research Reserve System Construction
(NOAA: PAC: NOS: *NERRS Construction*)

These non-regulatory investments strengthen and revitalize America's coastal communities by protecting and restoring habitat, improving local water quality, and enhancing resilience. Healthy coastlines protect communities from flood damage and extreme weather, improve commercial fisheries, safeguard vital infrastructure, and support tourism and recreational opportunities.

NOAA HABITAT CONSERVATION AND RESTORATION

(NOAA: ORF: NMFS: *Habitat Conservation and Restoration*)

NOAA's Office of Habitat Conservation (OHC) protects, restores, and promotes stewardship of coastal and marine habitat to support our Nation's fisheries and improves the resilience of coastal communities through financial support and the provision of restoration expertise and services. Funding for the Office of Habitat Conservation through the Habitat Conservation and Restoration PPA supports the Community-based Restoration Program, Coastal Ecosystem Resiliency Grants, the Estuary Restoration Program, and staff capacity to efficiently execute and facilitate habitat restoration nationwide.

NOAA's Community-based Restoration Program (CBRP), funds on-the-ground projects to restore the Nation's coastal, marine, and migratory fish habitat while creating jobs and benefiting local economies. Habitat restoration is critical to sustaining and rebuilding fish populations needed to support sportfishing opportunities and the commercial fishing industry in the coming years. Healthier habitats resulting from restoration increase community resilience by buffering against storms, protecting vital infrastructure, and providing new recreational opportunities.

The Community-based Restoration Program provides scientific expertise, funding, and technical support to national, regional, and local conservation partners to restore coastal and marine habitat. This non-regulatory tool has helped build collaborations with more than 2,500 organizations, from industry to nonprofits to local governments, and funded more than 2,000 projects that have restored over 81,000 coastal acres. The program has engaged more than 258,000 project volunteers and generated more than \$150 million in non-Federal match and in-kind contributions from project partners.

Our Nation's coastal communities face ever-increasing pressures from extreme weather events, changing environmental conditions, and sea level rise. These hazards not only threaten the 39 percent of the Nation's population that live in coastal counties, but also the economy, to which coastal counties provide nearly half of the Nation's GDP.

NOAA's Coastal Ecosystem Resiliency Grants aim to reduce these risks and associated costs by funding proactive, community-based projects that improve ecosystem and community resilience to extreme weather, sea level rise, flooding, and other coastal hazards. The Program focuses on building partnerships that leverage non-Federal funds to carry out projects that restore degraded or altered habitats to functioning, resilient ecosystems that not only provide direct benefits to communities, but also provide healthy habitat for commercial and listed fish species. The inaugural funding solicitation for this program drew in \$46 million in funding requests for shovel-ready resilience projects, more than nine times the available funding, demonstrating a significant need for these grants.

The Estuary Restoration Program was transferred from the National Ocean Service to the National Marine Fisheries Service under the Habitat Conservation and Restoration PPA without additional funding in fiscal year 2014 omnibus appropriations. The Estuary Restoration Act established a comprehensive interagency organization, the Estuary Habitat Restoration Council, comprised of five key Federal restoration agencies to lead a coordinated approach to estuary habitat restoration. Under the Act, NOAA is responsible for maintaining the National Estuaries Restoration Inventory (NERI). Modest funding is necessary for maintaining and updating NERI and to ensure cross-agency collaboration continues. Restore America's Estuaries urges your continued support of the Estuary Restoration Council and NOAA's Estuary Restoration Program.

We strongly urge the subcommittee to provide \$68.4 million for Habitat Conservation and Restoration, including no less than \$10 million for Coastal Ecosystem Resiliency Grants and \$21.1 million for the Community-Based Restoration Program. Funding at this level supports the President's fiscal year 2017 budget request, but we request that the subcommittee retain funding for Coastal Ecosystem Resiliency Grants within NMFS. We greatly appreciate the subcommittee's past strong support for habitat restoration and, in particular, the Coastal Ecosystem Resiliency Grants program.

NOAA REGIONAL COASTAL RESILIENCE GRANTS

(NOAA: ORF: NOS: Ocean and Coastal Management and Services: Coastal Management Grants: Regional Coastal Resilience Grants)

The National Ocean Service Regional Coastal Resilience Grants help interested communities improve resilience to extreme weather events, climate hazards, and changing ocean conditions by providing funding for collaborative partnerships that develop and use science-based solutions to address coastal hazards. These diverse efforts, including risk assessment, development of strategic resilience plans, and implementation of comprehensive adaptation strategies will help ensure that coastal communities are prepared for and more easily recover from coastal hazards. In fiscal year 2016, NOAA received more than 130 proposals from coastal communities requesting more than \$151 million for coastal resilience projects, demonstrating an unmet need for resilience planning and tools and project implementation nationwide.

Restore America's Estuaries urges the subcommittee to provide no less than \$10 million for the Regional Coastal Resilience Grant Program. We ask the subcommittee to ensure that NOS coordinates closely with the NMFS Office of Habitat Conservation to increase efficiency and leverage capacity to help meet shared goals.

NOAA NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

(NOAA: ORF: NOS: Ocean and Coastal Management and Services: National Estuarine Research Reserve System) / (NOAA: PAC: NOS: NERRS Construction)

The National Estuarine Research Reserve System (NERRS) is comprised of 28 protected reserves that support long-term research, education, training, and moni-

toring. Through an effective partnership between NOAA and coastal States, NERRS plays a critical role in sustaining resilient coasts and coastal communities.

The States have been entrusted to operate and manage NOAA's program in 22 States and Puerto Rico, where over 1.3 million acres of land and water are protected in perpetuity. Through scientific research and science-based management, NERRS provides numerous benefits to communities that result in improved water quality, increased upland flood and erosion control, and improved habitat quality that support local fisheries and provide storm protection to coastal communities.

NERRS assists our coastal communities, industries and resource managers to enhance coastal resiliency in a changing environment. As severe weather events become more common, Federal, State, and local officials are recognizing that estuaries have the capacity to provide green resilience infrastructure. Through NERRS, NOAA can tailor science and management practices to enable local planners to use estuarine habitat as a tool for resilience and adaptation.

Restore America's Estuaries respectfully requests \$23.9 million for NERRS operations and \$1.7 million for NERRS construction in fiscal year 2017. At this funding level, NERRS will be able to carry out much-needed infrastructure maintenance and upgrades that will allow NERRS to continue to deliver comprehensive environmental intelligence data and services to support coastal communities.

CONCLUSION

Restore America's Estuaries greatly appreciates the support this subcommittee has provided in the past for these important programs. These programs help to accomplish on-the-ground restoration work which results in major benefits:

- Jobs*.—Coastal habitat restoration projects create between 17–33 jobs per \$1 million invested, more than twice as many jobs as the oil and gas sector and road construction industries combined.
- More fish*.—Traditional fisheries management tools alone are inadequate. Fish need healthy and abundant habitat for sustainable commercial and recreational fisheries.
- Resiliency*.—Restoring coastal wetlands knocks down storm waves and reduces devastating storm surges before they reach the shore, protecting lives, property, and vital infrastructure for the nearly 40 percent of Americans that live in coastal communities.
- Leverage*.—Community-based restoration projects leverage 3–5 times the Federal investment through private matching funds, amplifying the Federal investment and impact.

Thank you for taking our requests into consideration as you move forward in the fiscal year 2017 appropriations process. We stand ready to work with you and your staff to ensure the health of our Nation's estuaries and coasts.

PREPARED STATEMENT OF THE SAC AND FOX NATION

Chairman Shelby and distinguished members of the subcommittee, I am Kay Rhoads, Principal Chief of the Great Sac and Fox Nation. The Sac and Fox Nation is home of Jim Thorpe, one of the most versatile athletes of modern sports who earned Olympic gold medals for the 1912 pentathlon and decathlon. Thank you for accepting this written testimony which presents to you our tribal requests for funding programs in the Office of Justice Services, Department of Justice.

Congress has taken historic steps in recent years with the passage of the Tribal Law and Order Act (TLOA) in 2010 and the Violence Against Women Reauthorization Act of 2013 (VAWA 2013), both of which begin to address some of the structural barriers to public health and safety in tribal communities. For the promise of these laws to be fully realized, they must be fully implemented, which requires sufficient resources for tribal justice systems and ongoing coordination and consultation between various Federal agencies and tribal governments. The public safety and justice needs of our communities should not be ignored and both of these bills should be funded to fulfill the intent of Congress.

The Sac and Fox Nation would like to advance the following Department of Justice budget requests for fiscal year 2017:

1. Fully Fund the Tribal Law and Order Act
2. Fully Fund All Tribal Provisions of the Violence Against Women Act
3. Tribal Grants—Utilize DOJ Appropriations as Base Funding with Tribes Setting Own Priorities
4. Tribal Set-Aside from All Discretionary Office of Justice Programs

The Sac and Fox Nation also supports the appropriation requests of the National Congress of American Indians.

About the Sac and Fox Nation

The Sac and Fox Nation is a Self-Governance Tribe headquartered in Stroud, Oklahoma. Our tribal jurisdictional area covers Lincoln, Payne, and Pottawatomie counties. Of the 4,000 enrolled tribal members, 2,600 live in Oklahoma. Our culture is based upon respect for the life within ourselves, our families, our communities, and all of creation. The Creator gave this way of life to the Sac and Fox people. The culture is the way things are done in relation to each other and all of creation. The Sac and Fox way of life is spiritually based. We seek the guidance of the Creator in how to live. The oldest continuing religious practices are ceremonies like clan feasts, namings, adoptions, and burials. More recent religious practices include the Drum Dance, the Native American Church and Christianity.

Fully Fund Tribal Law and Order Act as Authorized

The Tribal Law and Order Act (TLOA) has three basic purposes:

1. Make Federal departments and agencies more accountable for serving Native peoples and land;
2. Provide greater freedom for Indian Tribes and Nations to design and run their own justice systems; and
3. Enhance cooperation among Tribal, Federal and State officials in key areas such as law enforcement, training, interoperability and access to criminal justice information.

The Sac and Fox Nation operates a Juvenile Detention Center which provides services to 46 tribes in Oklahoma, Kansas and Texas, as well as the State of Oklahoma. We are anxious to advance the opportunities that TLOA can offer to further expand and increase access to our facility. However, unless TLOA is fully funded, facilities such as ours will not be able to attain the full potential and help to guide children in the system towards a successful future.

The full potential of TLOA cannot be realized or implemented without sufficient resources for tribal justice systems and ongoing coordination and consultation between tribal governments and various Federal agencies. DOJ recognized the importance of completing the circle when it issued the "Proposed Statement of Principles", in which is referenced that a stable funding at sufficient levels for essential tribal justice functions is critical to the long-term growth of tribal institutions. Yet the act remains under funded.

Fully Fund Violence Against Women Act as Authorized

We applaud the work of Indian Country and Congress to successfully enact the reauthorization of the Violence Against Women Act (VAWA) that includes all women in Indian Country as of December 12, 2014. The exemption of Alaska was disheartening and unacceptable to exclude any Native woman equal access to justice. Thank you for helping us to protect our mothers, daughters, sisters and wives from jurisdictional gaps or safe havens for criminals. But without funding to implement the law, this is an idle victory. We urge you to fully fund all of the tribal provisions of VAWA at the authorized amount.

With the implementation of the expanded jurisdiction arising from the Reauthorization of the Violence Against Women Act, Tribal Nations are meeting a budget crisis. At the Sac and Fox Nation, we have gone through the process of amending all of our laws dealing with this jurisdiction to ensure both compliance and fairness for all defendants. However, in order to ensure that overarching need, we have to be able to provide for a proper public defender to ensure that all defendants are getting the best representation possible. However, the funding provided to justice programs is at such a low level that we are prevented from having someone on staff to fill that role. This creates a problem of access and availability which must be corrected. Moreover, we also need to have the ability to jail persons who are convicted, especially those with long sentences due to multiple convictions or serious offenses. However, the funding levels for incarceration that are currently appropriated to tribes are simply not enough to cover these costs. The Sac and Fox Nation is a prime example of this. We do not have our own facility to incarcerate convicted persons, or access to Bureau of Prisons facilities, and must send them to county jails which may cost us anywhere from \$33-\$78 per day. At those rates incarcerating one person for a year would use a large majority of our incarceration budget. This makes it significantly harder for us to protect the women and children of the Sac and Fox Nation from violence. We ask that you seriously consider increasing the appropriations to support the changes that we are making for the future.

Tribal Grants—Utilize DOJ appropriations as base funding with tribes setting own priorities—Eliminate the competitive grant funding process and utilize Justice Department appropriations as base funding where tribes and tribal courts themselves determine their own priorities.

Competitive funding for tribal priorities is a no win situation that continues to pit tribe against tribe. One of the biggest issues with DOJ funding is that it is competitive. In order to obtain the funding tribes must compete against each other based on DOJ's priorities and guidelines rather than identifying their own priorities to best serve their citizens at the local level.

Instead the approach should be to utilize DOJ appropriations as base funding so that tribes are encouraged to determine their priorities. It appears that DOJ understands this concept inasmuch as it posed the idea of base funding in the form of a block grant during tribal consultation on the Office of Violence Against Women (OVW). We propose that DOJ not merely propose this for OVW, but consider this for all tribal appropriations in the Department.

Tribal Set-Aside (Seven Percent).—Again we ask for a 7 percent tribal set-aside from all discretionary Office of Justice Programs program funding. Ensure that they are allocated as flexible base funding. The 7 percent set-aside was cut in the passage of the fiscal year 2012 Consolidated and Further Continuing Appropriations Act. As a result tribal justice programs were cut across the board and continue to struggle to address the increasing need of these funds which were further impacted by the sequestration.

A majority of tribal trust and treaty promises are funded in the domestic discretionary budget. In fiscal year 2014, non-defense discretionary funding was nearly 18 percent below fiscal year 2010 levels adjusted only for inflation as a result of cuts made in the fiscal year 2011 appropriations process and the Budget Control Act, including sequestration. Tribes urged the appropriators to replace the sequestered funds and avoid cutting even more deeply from key domestic investments, which include the solemn duty to fund the trust responsibility. The Murray-Ryan budget agreement partially replaced sequestration but tribal programs were not restored.

Congress and the administration should enact an amendment to the Budget Control Act of 2011 to fully exempt Indian program funding from future sequestrations to honor the Federal trust responsibility and the chronic and severe underfunding of all tribal programs.

This would be a show of good faith that "great nations like great men honor their word"!

Thank you.

PREPARED STATEMENT OF THE SEA GRANT ASSOCIATION

This year marks the 50th anniversary of the National Sea Grant College Program. On behalf of the 33 Sea Grant programs in every coastal and Great Lake State, plus Puerto Rico and Guam, the Sea Grant Association (SGA) expresses its gratitude to the Congress for strong and consistent support it has provided year in and year out for the National Sea Grant College Program (Sea Grant). Sea Grant was created by the U.S. Congress in 1966 to be a highly leveraged Federal and State partnership to harness the intellectual capacity of the Nation's universities to solve ocean, coastal, Great Lakes and island (hereby referred to as coastal) problems. Sea Grant provides unique access to scientific expertise and to new discoveries. Through its scientists and communications, education, extension and legal specialists (hereby referred to as engagement professionals), Sea Grant generates, translates and delivers cutting-edge, unbiased, science-based information to address complex issues.

For the United States to be more responsive to the economic development potential of its coastal resources, improve coastal resilience, and balance the environmental challenges its coastal communities face, the Sea Grant Association is requesting Federal funding of \$80 million in fiscal year 2017 for the research, education, and extension activities that make up the National Sea Grant College Program. This recommended funding level would support the key focus areas in the program's strategic plan: healthy coastal ecosystems; sustainable fisheries and aquaculture; resilient communities and economies; environmental literacy and workforce development.

The National Sea Grant College Program contributions to the economic health of the Nation's coastal communities.—In 2014, the Sea Grant program delivered the following benefits to the Nation as a result of its activities:

- \$450 million in economic development;
- 6,500 businesses created or retained;
- 17,500 jobs created or retained;

- 290,000 volunteer hours for outreach;
- 760 undergraduate students supported;
- 980 graduate students supported;
- 53,000 stakeholders modify practices based on information and technical assistance provided by Sea Grant;
- 220 communities implement new sustainable practices; and
- 21,700 acres of ecosystems restored.

The Importance of the Nation's Coastal Communities.—Sea Grant is NOAA's Federal-State partnership program that supports science-based, environmentally sustainable practices to ensure our coastal communities remain engines of economic growth in a rapidly changing world. More than half of the United States population lives in coastal counties that generate 58 percent (\$8.3 trillion) of the Nation's gross domestic product (GDP). In 2011, Americans, on average, ate 15 pounds of fish and shellfish per person—4.7 billion pounds all together—making the U.S. second in the world in total seafood consumption. Offshore oil production in the U. S. Exclusive Economic Zone accounts for 24 percent of the total U.S. crude oil production. If American coastal watershed counties collectively comprised a single country, that country would have a GDP higher than that of China. The United States has jurisdiction over 3.4 million square miles of oceans—an expanse greater than the land area of all 50 States combined. This is a dynamic area that offers a mosaic of biologically diverse habitats that provide a wealth of environmental resources and economic opportunities, while at the same exposing human and biological communities to hazards such as damaging tsunamis and hurricanes, industrial accidents and outbreaks of water borne pathogens. Sea Grant's portfolio touches on all of these issues in meaningful ways helping those who live, work and recreate on our Nations' coast to prosper.

Serious challenges present the greatest opportunities for change, and Sea Grant is prepared not only to respond, but to help coastal communities prepare to meet these challenges. One of Sea Grant's demonstrated strengths is its ability to quickly mobilize universities and other partners to address challenges across the country and around the world. The national Sea Grant network of university scientists and communication, education, extension and legal professionals has the ability, through the organization's coordinated State and regional infrastructure, to address local and State priorities of national importance. At this time of great risk to the sustainability of our ocean, coastal and Great Lakes resources, there is an even greater opportunity for the Sea Grant network to play a significant role, through innovation and creativity, in addressing the goals set forth in this plan. The Sea Grant programs will strive to achieve these national goals in a manner that reflects the particular needs of individual States and communities and the Nation as a whole.

The National Sea Grant College Program envisions a future where people live, work and play along our coasts in harmony with the natural resources that attract and sustain them. This is a vision of coastal America where we use our natural resources in ways that capture the economic, environmental and cultural benefits they offer, while preserving their quality and abundance for future generations. This vision complements the vision articulated in NOAA's Strategic Plan: "Healthy ecosystems, communities and economies that are resilient in the face of change." Sea Grant's mission is to provide integrated research, communication, education, extension and legal programs to coastal communities that lead to the responsible use of the Nation's ocean, coastal and Great Lakes resources through informed personal, policy and management decisions.

Sea Grant is a national network. This network includes the National Sea Grant Office, 33 university-based State programs, the National Sea Grant Advisory Board, the National Sea Grant Law Center, the National Sea Grant Library and hundreds of participating institutions. The Sea Grant network enables NOAA and the Nation to tap the best science, technology and expertise to balance human and environmental needs in coastal communities. Sea Grant's alliance with major research universities around the country provides access to thousands of scientists, students and engagement professionals. Sea Grant's university-based programs are fundamental to the development of the future scientists and resource managers needed to conduct research and to guide the responsible use and conservation of our Nation's coastal resources. With its strong research capabilities, local knowledge and on-the-ground workforce, Sea Grant provides an effective national network of unmatched ability to rapidly identify and capitalize on opportunities and to generate timely, practical solutions to real problems in real places. Since its creation, the National Sea Grant College Program has been at the forefront of addressing economic opportunities and environmental issues facing coastal communities through its research and outreach efforts. Sea Grant is user-driven and university-based, and it is fully and actively

engaged with regional, State, and local organizations. Sea Grant helps America use its coastal resources wisely in order to sustain the health and productivity of coastal communities.

Sea Grant in Action in Local Communities

Mississippi-Alabama Sea Grant research and outreach leads to development of commercial off-bottom oyster farming industry in Alabama that approaches \$1,000,000 per year. The Gulf Coast oyster industry has suffered a number of setbacks, both natural and manmade, that are challenging an industry built around inexpensive, plentiful oysters. Off-bottom oyster farming for the high-value, half-shell niche market, as practiced on the northeast and Pacific coasts, provides an opportunity for Gulf residents to create jobs, increase profits and diversify the oyster industry. Sea Grant-funded scientists established two large oyster farming parks that serve as platforms for training and business development, as part of a partnership between Louisiana Sea Grant, the Mississippi-Alabama Sea Grant Consortium (MASGC), Auburn University, and Louisiana State University. The parks demonstrate grow-out and harvesting technology and techniques. Scientists also provided technical advice and evaluations of possible sites to potential oyster farmers. Along with scientists, Sea Grant legal specialists were integral in providing research to inform passage of State legislation that clarified and simplified the permitting process. Nine new commercial oyster farms have been established in Alabama, with a total farm-gate value exceeding \$825,000 to date, which is expected to more than double in 2015, increasing incomes and generation of local jobs (at least 6 full-time positions and over 10 part-time positions). At least 5 wholesalers in Alabama also profited from the sales of these oysters. Two new oyster equipment companies were established in Alabama, with total sales inception well over \$100,000. Several applications for new commercial farms are pending the results of the governor's review board mandated by Alabama HB 361. This work has also led the Gulf Oyster Industry Council to appoint a technical advisor on oyster farming since 2012. In partnership with Organized Seafood Association of Alabama (OSAA), MASGC has conducted a hands-on training program Oyster Farming Fundamentals, which has trained 16 adult students that have collectively raised 350,000 oyster seed, and developing a "vo-tech" program that trains high school students to be oyster farmers.

Wisconsin Sea Grant.—Sea Grant recognizes the vital nature of its engagement within collaborative NOAA activities. Such efforts not only broaden Wisconsin's experiences and learning opportunities but also allow Wisconsin staff to contribute to a stronger focus when addressing national and regional marine challenges to ensure sustainable use. One such rich partnership is with the Lake Superior National Estuarine Research Reserve. In 2010, the Lake Superior National Estuarine Research Reserve was dedicated. It was the culmination of several years of involvement by Wisconsin Sea Grant to bring this fellow NOAA program to the State. Sea Grant staff had contributed to the scoping study, participated in the site selection, currently serve on the advisory board and has co-located three staff members in the LS-NERR facility in Superior, Wisconsin. In total, these efforts have led to important collaborative work, including assistance with an annual science summit; a science speaker series; and Sea Grant funding for specific joint research projects. The joint research is also being funded through yet another NOAA partnership, with Minnesota Sea Grant.

Florida's \$3 Million commercial sponge fishery employed traditional harvesting practices that impaired the ability of sponges to regrow, making the industry unsustainable. *Florida Sea Grant* agent, John Stevely, an internationally recognized sponge expert, developed a new harvesting protocol (one that harvests sponges by cutting rather than hooking) that allows the sponges to regenerate. This method is now used by the industry to harvest sponges sustainably. Areas that had been traditionally closed to sponge harvesting have been reopened following Florida Sea Grant research that showed current harvesting methods are sustainable. It is estimated that Florida Sea Grant's recommended approach to sponge harvesting has resulted in the retention of 150 jobs and \$3 million in annual earnings to the Florida commercial sponge industry. Jim Cantonis, President of ACME Sponge and Chamnios, Tarpon Springs, Florida, commented that "If it was not for Florida Sea Grant, there would be no commercial sponge industry in Florida."

Sea Grant's role in STEM Education.—The Sea Grant program provides an important mechanism that delivers high quality, stimulating STEM education to students using the oceans and coasts or the Great Lakes, as the exciting vehicle for conveying important scientific and natural resource concepts. The support that Sea Grant provides is an important catalyst and helps create important educational partnerships in coastal communities. We urge the subcommittee to continue to support Sea Grant

STEM activities in the fiscal year 2017 Commerce, Justice and Science Appropriations bill.

Sea Grant—A Cost Effective Investment in Coastal Communities.—Approximately 95 percent of the Federal funding provided to Sea Grant leaves Washington DC and goes to the State programs where it is used to conduct research, carry out extension and outreach activities, and deliver valuable services to the Nation. Moreover, Federal funding through the Sea Grant program has a significant leveraging impact with every two Federal dollars invested attracting at least an additional dollar in mandatory non-Federal resources in matching funding, in addition to the additional funds and resources leveraged through extensive partnerships. With \$80 million in Federal funding for fiscal year 2017, Sea Grant will leverage an additional \$40 million to \$80 million in State and local support, continue to increase the economic development and resiliency of our coastal communities, contribute to STEM education in our communities, and help sustain the health and productivity of the ecosystems on which they depend. The National Sea Grant College Program is one of the very few nationally competitive grant programs that can demonstrate this kind of real impact at the local, State, and national levels. The Sea Grant Association is grateful to the subcommittee for the opportunity to provide this information.

PREPARED STATEMENT OF SEARCH, THE NATIONAL CONSORTIUM FOR JUSTICE
INFORMATION AND STATISTICS

Introduction

Thank you, Mr. Chairman and members of the subcommittee, for the opportunity to submit testimony on the Department of Justice (DOJ) funding to be provided for in the fiscal year 2017 Commerce, Justice, Science, and Related Agencies appropriations bill. SEARCH recommends an appropriation of \$73 million for the National Criminal History Improvement Program (NCHIP) and the National Instant Criminal Background Check System (NICS) Act Record Improvement Program (NARIP), which is the amount that was included in the 2016 Consolidated Appropriations Act.

SEARCH, The National Consortium for Justice Information and Statistics (SEARCH), is a nonprofit membership organization created by and for the States. SEARCH's Governor-appointed, dues-paying members from the States and Territories have the responsibility, among other things, to oversee both NCHIP and NARIP within their States.

Over the years, States have made great strides in meeting their criminal history record improvement goals under both programs. The past 2 years of robust funding for these programs as reflected in the fiscal year 2015 and fiscal year 2016 Commerce, Justice, Science and Related Agencies appropriations was welcomed by the States who use the funding to modernize and enhance operations and technology, to more effectively share data for critical criminal justice and public safety decisions. NCHIP funding has helped States dramatically improve the quality and completeness of criminal history records, as well as make them electronically available nationwide. NARIP has vastly improved information available for firearms eligibility via the NICS system, including increasing mental health records available to NICS by nearly 1500 percent.¹

There is still work to be done to realize a truly complete and accurate national criminal history background check system. That system not only informs a variety of critical public safety decisions, but also noncriminal justice decisions, such as those regarding applicants for employment and licensing; volunteers who work with children, elderly and other vulnerable populations; and individuals purchasing firearms. It is important to recognize that information stored in the States' criminal history record repositories and used for criminal justice decisionmaking (such as arrest, filing of charges, sentencing, and inmate housing), is the same information required for other public safety and civil decisions (such as decisions about individuals applying for employment or volunteer work, and for firearms eligibility determinations).

The States are leveraging prior congressional funding to engage in broad-scale initiatives and partnerships with other State agencies to improve and enhance criminal history record information collection and sharing. These partnerships between the criminal history repositories and the State courts, corrections, prosecution and mental health agencies—among others—have been encouraged through these substantive grant funding streams and mean enterprise solutions can be developed to common cross-agency information sharing challenges. They hope to continue this work with new funding in fiscal year 2017.

¹ <http://www.search.org/mental-health-records-in-nics-increase-1491-over-the-past-decade/>.

SEARCH appreciates the subcommittee's recognition that while both NCHIP and NARIP each focus on improvements to the efficiency, effectiveness, timeliness and accuracy of criminal history record and associated data for decisionmaking purposes, each program emphasizes specific and distinct goals.

NCHIP allows States to focus on a broad range of criminal history improvement activities that are unique and specific to each State. States have identified and prioritized the improvements needed in their systems to support critical decision-making at the State and national level for both criminal and civil decisions. Some of those priorities include improving arrest records, increasing dispositions, increasing conviction record availability in the Federal systems, and enhancing positive identification capabilities.

Maine, for example, has used NCHIP funding to locate missing criminal history record dispositions or fingerprint-supported records, specifically focusing on improving felony, sex offender and domestic violence records. Connecticut has used NCHIP funding to migrate paper criminal history record dispositions into a searchable electronic format to improve the overall efficiency in searching disposition records and reduce the disposition backlog. North Carolina has used NCHIP funding to identify and enter 74,000 mental health commitments into NICS. Washington State has used NCHIP funding to dramatically increase the number of dispositions in the State's criminal history system. Like many other States, Georgia and Vermont have used NCHIP funding to become fully compliant with the National Fingerprint File, assuming ownership of its criminal history records, and maintaining the record as part of the FBI's Interstate Identification Index.

The flexibility of NCHIP funding allows States to enhance enterprise information sharing and data use to support a myriad of key decisions in the justice arena each and every day. For example, the lack of positive, biometric identification associated with criminal history records is often a major challenge. Kentucky used fiscal year 2015 funding to develop a Court Fingerprint Notification application within its E-Warrants system. When an offender appears before a judge, the judge will be automatically notified if the offender's fingerprints are not on file, allowing the judge the ability to order that fingerprints be taken. South Carolina used NCHIP funding to improve the number and quality of palm prints it submits to the FBI for nationwide use.

In contrast to the NCHIP grant funding, NARIP funding focuses specifically on improving information sharing with NICS for firearms purchases. There are 10 categories established in Federal law that disqualify an individual from purchasing firearms. They include disqualifiers such as felony conviction information, fugitive from justice, domestic violence protection order, involuntary commitment to mental health institution, etc.

Nearly 90 percent of the records used to make these disqualifying decisions are based on the information that States provide to NICS.² That information comes from three key sources: the Interstate Identification Index (III—the national system for exchanging criminal record information), the National Crime Information center (NCIC—an automated, nationally accessible database of crime data, criminal justice and justice-related records, including wanted persons and protection orders) and the NICS Index (created for presale background checks of firearms purchase). Any efforts States undertake to improve the information contribution to any of these databases enhances the effectiveness of firearms eligibility decisionmaking.

NARIP grants allow States to improve information made available to NICS, such as increasing the number of disqualifying mental health records into the NICS Index and domestic violence orders of protection into the NCIC. Such targeted funding assists States meet challenges specifically associated with getting information to the system. However, NARIP funds are only available to 27 States at this point, as not all States qualify for the funding.³

Those States that do qualify can target information sharing efforts to improve their contributions to NICS. Kentucky officials, for example, have used funds to develop a capability to identify persons prohibited from firearms purchases due to fugitive from justice status and automatically transmit these records to the NICS Index.

In New York, NARIP grant funds have significantly improved the records that New York State makes available to the NICS Index. New York can now efficiently transmit records of mental health involuntary admissions and civil guardianships

² FBI Criminal Justice Information Services III Statistics, February 1, 2013.

³ NARIP has two main requirements: States must (1) establish a process where those adjudicated as "mentally defective" can seek to reinstate their right to purchase a firearm, and (2) comply with a process to estimate the number of NICS disqualifying records they maintain. Only 27 States have met requirement #1.

to NICS. The State also collects and reports Misdemeanor Crimes of Domestic Violence (MCDV) convictions to NICS so that vulnerable spouses, children and intimate partners are further protected. The State also completed significant system enhancements to improve the accuracy and completeness of disposition data made available to NICS via New York's Criminal History Reports.

In Florida, the State Department of Law Enforcement (FDLE) partnered with the clerks of court and law enforcement agencies to update missing court dispositions, arrest records, and historic civil mental health records which could result in domestic violence convictions and other firearm purchase disqualifiers. Over 1.8 million new dispositions have been added and more than 6.4 million records have been updated. In addition, 180,000 civil mental health records were added and are now available for NICS firearm purchase decisions.

SEARCH makes three key recommendations regarding NCHIP and NARIP funding:

1. *Support NCHIP funding for improvements to State criminal history record information to robustly support criminal and civil decisionmaking nationwide.*—The NCHIP program has been successful in helping States to improve the accuracy, reliability and completeness of their automated, criminal history record systems. Meaningful NCHIP funding will more broadly improve this Nation's criminal justice information sharing backbone. And the Federal investment can be leveraged many times over by contributing to the ability of State and local criminal justice agencies to provide timely, accurate and compatible information to Federal programs such as III. Most importantly, all States qualify for funding under NCHIP.

NCHIP funding since fiscal year 2014 has reinvigorated a program that had suffered in years past from considerably reduced funding. Because State criminal history records are the primary source for the FBI III database, any constraints on the States weakens the ability of many State and Federal programs to identify threats and keep our Nation safe.

2. *Continue to invest in improving background screening for firearms purchases.*—We urge Congress to continue the investment in the Federal-State criminal background screening partnership that comprises NICS. NICS is a critical tool in the fight against gun violence, and the States and FBI rely on NICS every day for informed decisionmaking on firearms transactions.

There are still many opportunities for improving the timeliness and availability of information to NICS. There are still millions of records related to felony convictions, under indictment/information, fugitive from justice and drug abuser prohibiting categories that are not always available to NICS. States have made huge strides in making mental health records available to NICS. Many States would like to target information sharing in the other prohibitor categories to further improve their information sharing to NICS.

3. *Provide an appropriation of \$73 million for NCHIP and NARIP.*—Providing level funding for NCHIP and NARIP in fiscal year 2017 will allow States to utilize these programs to improve their criminal history records in support of general criminal justice and civil decisionmaking, as well as improvements to background screening for firearms purchases.

Conclusion

SEARCH thanks the Chairman and members of the subcommittee for their steadfast support of these programs in the face of daunting budget challenges. Given the reliance on criminal history record systems for critical decisions that keep our citizens safe from guns, predators, terrorists and other criminals, it is a worthwhile and needed investment. The accuracy, completeness and reliability of the Nation's criminal history record system is more important than ever before, for criminal investigations; officer safety; sentencing and other criminal justice purposes; for expungement and other reentry strategies; for homeland security and anti-terrorism purposes; for public non-criminal justice purposes, such as security clearances and employment suitability; and for research that provides critical guidance in shaping law and policy.

As you can see from the examples above, for both of NICS and NCHIP, SEARCH encourages Congress to allow States to use funding at their discretion to address the specific challenges each State faces in making more records available to the national system.

On behalf of SEARCH's Governor-appointees, and the thousands of criminal justice officials who benefit from SEARCH's efforts, I thank you for your consideration.

PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS
(SIAM)

Summary: This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the National Science Foundation (NSF) in fiscal year 2017 by providing NSF with the President's proposed funding level of \$7.964 billion. In particular, we urge you to provide strong support for key applied mathematics and computational science programs in the Division of Mathematical Sciences and the Division of Advanced Cyberinfrastructure.

Full Statement: We are submitting this written testimony for the record to the Subcommittee on Commerce, Justice, Science, and Related Agencies of the Committee on Appropriations of the U.S. Senate on behalf of the Society for Industrial and Applied Mathematics (SIAM).

SIAM has over 14,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has almost 500 institutional members, including colleges, universities, corporations, and research organizations.

First, we would like to emphasize how much SIAM appreciates your subcommittee's continued leadership on and recognition of the critical role of the National Science Foundation (NSF) and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society.

Today, we submit this testimony to ask you to continue your support of NSF in fiscal year 2017 and beyond. In particular, we join with the research and higher education community and request that you provide NSF with \$8 billion.

As we are reminded every day, the Nation's economic strength, national security, and public health and welfare are being challenged in profound and unprecedented ways. Addressing these challenges requires that we confront fundamental scientific questions. Computational and applied mathematical sciences, the scientific disciplines that occupy SIAM members, are particularly critical to addressing U.S. competitiveness and security challenges across a broad array of fields: medicine, engineering, technology, biology, chemistry, computer science, and others. SIAM recognizes the challenging fiscal situation; however, we also face an "innovation deficit," the widening gap between the actual level of Federal Government funding for research and what the investment needs to be if the United States is to remain the world's innovation leader. Federal investments in mathematics, science, and engineering remain crucial as they power innovation and economic growth upon which our economy and fiscal health depend.

NATIONAL SCIENCE FOUNDATION

NSF provides essential Federal support for applied mathematics and computational science, including more than 60 percent of all Federal support for basic academic research in the mathematical sciences. Of particular importance to SIAM, NSF funding supports the development of new mathematical models and computational algorithms, which are critical to making substantial advances in such fields as neuroscience, energy technologies, genomics, analysis and control of risk, and nanotechnology. In addition, new techniques developed in mathematics and computing research often have direct application in industry. Modern life as we know it—from search engines like Google to the design of modern aircraft, from financial markets to medical imaging—would not be possible without the techniques developed by mathematicians and computational scientists. NSF also supports mathematics education at all levels, ensuring that the next generation of the U.S. workforce is appropriately trained to participate in cutting-edge technological sectors and that students are attracted to careers in mathematics and computing.

Below are highlights of the main budgetary and programmatic components at NSF that support applied mathematics and computational science.

NSF DIVISION OF MATHEMATICAL SCIENCES

The NSF Division of Mathematical Sciences (DMS) in the Directorate for Mathematical and Physical Sciences (MPS) provides the core support for all mathematical sciences. DMS supports areas such as algebra, analysis, applied mathematics, combinatorics, computational mathematics, foundations, geometry, mathematical biology, number theory, probability, statistics, and topology. In addition, DMS supports national mathematical science research institutes; infrastructure, including

workshops, conferences, and equipment; and postdoctoral, graduate, and undergraduate training opportunities.

The activities supported by DMS and performed by SIAM members, such as modeling, analysis, algorithms, and simulation, provide new ways of obtaining insight into the nature of complex phenomena, such as infectious diseases, financial transaction systems, terrorist networks, and designer materials. SIAM strongly urges you to provide at least \$6.425 billion for Research and Related Activities at NSF to enable funding for DMS at the President's proposed level of \$249.2 million. This funding would enable critical support for early career researchers and would help reverse the damaging cuts of recent years to enable essential mathematical research and workforce development programs.

Investment in DMS is critical because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the Nation's economic competitiveness and national security, and in making substantial advances on societal challenges such as energy, the environment, and public health. NSF, with its support of a broad range of scientific areas, plays an important role in bringing U.S. expertise together in interdisciplinary initiatives that bear on these challenges. DMS has traditionally played a central role in such cross-NSF efforts, with programs supporting the interface of mathematics with a variety of other fields. SIAM endorses DMS participation in NSF-wide initiatives such as Data for Scientific Discovery and Action (D4SDA), Risk and Resilience, Cyber-enabled Materials and Manufacturing for Smart Systems (CEMMSS), and Understanding the Brain (UtB), to develop mathematical and computational tools that enable progress on these challenges. SIAM also supports DMS in its role as leader and coordinator of MPS's participation in the crosscutting Optics and Photonics initiative. SIAM additionally applauds DMS's new effort to engage mathematical scientists broadly in national initiatives through the Mathematical Sciences Innovation Incubator, which enables DMS cooperation on a broad array of programs and initiatives to spur new collaborations between mathematical scientists and researchers in other fields.

NSF DIVISION OF ADVANCED CYBERINFRASTRUCTURE

Work in applied mathematics and computational science is critical to enabling effective use of the rapid advances in information technology and cyberinfrastructure. Programs in the NSF Division of Advanced Cyberinfrastructure (ACI) in the Directorate for Computer and Information Science and Engineering (CISE) focus on providing research communities access to advanced computing capabilities to convert data to knowledge and increase our understanding through computational simulation and prediction.

SIAM again strongly urges you to provide at least \$6.425 billion for Research and Related Activities to enable funding for ACI at the President's proposed funding level of \$236.3 million. This investment in computational resources and science is needed to solve complex science and engineering problems. In addition, SIAM strongly endorses ACI's role as steward for computational science across NSF, strengthening NSF support for relevant activities and driving universities to improve their research and education programs in this multidisciplinary area.

SIAM strongly supports ACI data activities, including data infrastructure, tools, and repositories, as well as the NSF-wide D4DSA. The explosion in data available to scientists from advances in experimental equipment, simulation techniques, and computer power is well known, and applied mathematics has an important role to play in developing the methods and tools to translate this shower of numbers into new knowledge. The programs in ACI that support work on software and applications for the next generation of supercomputers and other cyberinfrastructure systems are also very important to enable effective use of advances in hardware, to facilitate applications that tackle key scientific questions, and to better understand increasingly complex software systems.

SIAM strongly endorses NSF's role in the government-wide National Strategic Computing Initiative (NSCI), which aims to position the Nation to meet critical national security needs, fully leverage computing technology for economic competitiveness and scientific discovery, and position the U.S. for sustained technical leadership. Together with MPS, ACI will co-lead NSF's participation in NSCI by facilitating the development of resilient, reusable, and durable scientific software architectures to advance discovery through scientific computation.

SUPPORTING THE PIPELINE OF MATHEMATICIANS AND SCIENTISTS

Investing in the education and development of young scientists and engineers is a critical role of NSF and a major step the Federal Government can take to ensure the future prosperity and welfare of the United States. SIAM strongly supports sig-

nificant funding for the Graduate Research Fellowship (GRF) program and the Faculty Early Career Development (CAREER) program. Strong investments in these programs will support thousands of new graduate students, which will help develop the country's next generation of scientists.

Before reaching the graduate and early career stage, young mathematicians and scientists gain critical interests and skills as undergraduates. SIAM supports efforts by NSF to improve undergraduate science, technology, engineering, and mathematics (STEM) education, and notes the key role that mathematicians play in training for these fields.

CONCLUSION

We would like to conclude by thanking you again for your ongoing support of NSF that enables the research and education communities it supports, including thousands of SIAM members, to undertake activities that contribute to the health, security, and economic strength of the United States. NSF needs sustained annual funding to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue robust support of these critical programs in fiscal year 2017.

We appreciate the opportunity to provide testimony to the subcommittee on behalf of SIAM. SIAM looks forward to providing any additional information or assistance you may ask of us during the fiscal year 2017 appropriations process.

PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

On behalf of the Society for Industrial and Organizational Psychology (SIOP), we are pleased to provide this written testimony to the Senate Appropriations Subcommittee on Commerce, Justice, and Science, and Related Agencies for the official record. SIOP urges the Subcommittee to provide \$8 billion for the National Science Foundation (NSF), including strong support for the Directorate for Social, Behavioral, and Economic Sciences (SBE), in the fiscal year 2017 appropriations process.

SIOP and its members recognize and appreciate the challenging fiscal environment in which we, as a nation, currently find ourselves; however, we believe strongly that Federal investment in social and behavioral science research directly impacts the U.S. economy, national security, and the health and well-being of Americans.

Through SBE, NSF supports basic research to develop a scientific evidence base for improving the performance, effectiveness, management, and development of organizations. The methods, measurements, and theories developed through this Federal investment enhance business practices, policy-making, and interprofessional collaboration. The evidence base derived from basic research in the science of organizations is applied across sectors and disciplines. For example, the National Aeronautics and Space Administration (NASA) leverages the evidence base of organizational science for team selection and training for agency missions to mitigate team member conflicts and promote team cohesion.

Additionally, new pressures to address privacy, performance, and safety in the workplace have further expanded the need for Federal investment in social and behavioral science research, especially industrial and organizational (I-O) psychology, emphasizing the importance of the entire work system, in addition to the individual. Recent events and conditions, including violence and incivility in the workplace, challenging economic circumstances, subtle and formal discrimination based on sexual orientation and gender, coping with talent shortages in technical jobs, and the implementation of new governmental regulations, catalyze the development and application of new methodologies for studying how people think and behave in the workplace.

With funding assistance from NSF, as well as other Federal agencies, the field of I-O psychology has developed data-driven methods to predict successful teams, address workplace dysfunction, improve the work experience of individuals, and enhance job performance and employee engagement. Using this rich knowledge and understanding has informed and maximized private companies, as well as the public workforce. Continued Federal support for I-O psychology keeps the knowledge in the public domain and enhances shared workplace efficiency and understanding of worker well-being at all levels. Other applications of I-O psychology include: improving airline safety through Crew Resource Management, transitioning veterans and servicemembers to civilian jobs, managing age diversity in the workplace, and mitigating the impact of furloughs on the Federal workforce, among others.

SIOP is a community of more than 8,000 members worldwide with the common interest in promoting the science, practice, and teaching of I-O psychology to en-

hance human well-being and performance in organizational and work settings. SIOP provides a platform for scientists, academics, consultants, and practitioners to collaborate, implement, and evaluate cutting-edge approaches to workplace challenges across sectors.

Given NSF's critical role in supporting fundamental research and education across science and engineering disciplines, SIOP supports an overall fiscal year 2017 NSF budget of \$8 billion. SIOP requests robust support for the NSF SBE Directorate, which funds important research studies, enabling an evidence base, methodology, and measurements for improving organizational function, performance, and design across sectors and disciplines.

Thank you for the opportunity to offer SIOP's support for NSF. Please do not hesitate to contact SIOP should you have any questions. Additional information is also available at www.siop.org.

[This statement was submitted by Steve Kozlowski, President, and Dave Nershi, Executive Director.]

PREPARED STATEMENT OF THE UNITED STATES SECTION OF THE PACIFIC SALMON
COMMISSION

Mr. Chairman, and honorable members of the subcommittee, I am W. Ron Allen, the Alternate Tribal Commissioner and Chair for the U.S. Section Budget Committee of the Pacific Salmon Commission (PSC). I am also Tribal Chairman/CEO of the Jamestown S'Klallam Tribe located on the northern Olympic Peninsula of Washington State. The U.S. Section prepares an annual budget for implementation of the Pacific Salmon Treaty.

Department of Commerce funding in support of implementing the Pacific Salmon Treaty is part of the Salmon Management Activities account in the National Marine Fisheries Service (NMFS) budget. Funding in the Department of Commerce budget intended for the programs to fulfill national commitments created by the Treaty was \$11,170,919 in the 2015 budget. The U.S. Section estimates that a budget of \$14,700,000 for fiscal year 2017 is needed to implement national commitments created by the Treaty.

The implementation of the Treaty is funded through the Departments of Commerce, Interior and State. The Department of Commerce principally funds programs conducted by the States of Washington, Oregon, Idaho and Alaska and the National Marine Fisheries Service. The costs of the programs conducted by the States to fulfill national commitments created by the Treaty are substantially greater than the funding provided in the NMFS budget in past years. Consequently the States have supplemented the Federal Treaty appropriations from other sources including State general funds.

The Pacific Salmon Treaty line item of the National Marine Fisheries Service budget was funded at \$6,780,987 for fiscal year 2015 and provides base support for the States of Alaska, Washington, Oregon, and Idaho and the National Marine Fisheries Service to conduct salmon stock assessment and fishery management programs required to implement the Treaty's conservation and allocation provisions for coho, sockeye, Chinook, chum, and pink salmon fisheries. Effective, science-based implementation of negotiated salmon fishing arrangements and abundance-based management approaches for Chinook, southern coho, Northern Boundary and Transboundary River salmon fisheries include efforts such as increased annual tagging and tag recovery operations, harvest monitoring, genetic stock identification and other emerging stock identification techniques. The U.S. Section identified a need of \$9,700,000 for fiscal year 2017 to fully carry out these activities.

The Chinook Salmon Agreement line item in the Salmon Management Activities is funded at \$1,619,697 in fiscal year 2015 and represents a reduction of \$217,000 from previous levels. This funding supports research and stock assessment necessary to acquire and analyze the technical information needed to fully implement the abundance-based Chinook salmon management program provided for by the Treaty. The States of Alaska, Washington, Oregon, and Idaho, and the 24 Treaty Tribes conduct projects that are selected through a rigorous competitive process.

The International Fisheries Commissions line, under Regional Councils and Fisheries Commissions in the NMFS budget is funded at \$356,889 and provides the U.S. contribution to bilateral cooperative salmon enhancement on the transboundary river systems which rise in Canada and flow to the sea through Southeast Alaska. This project was established in 1988 to meet U.S. obligations specified in the Treaty and had been previously funded at \$400,000 annually.

The 2008 Agreement line supports programs to improve the Coded Wire Tag system and to monitor and protect critical Puget Sound Chinook stocks. These funds

are necessary to reach a new 2018 agreement with revised fishery provisions between the U.S. and Canada. The amount appropriated for fiscal year 2015 was \$3,023,376. The U.S. Commissioners view continued funding of these programs in the fiscal year 2017 Federal budget as necessary to address Chinook salmon conservation needs and to meet existing Treaty commitments.

The core Treaty implementation projects included in the Pacific Salmon Treaty line, and the U.S. Chinook Agreement line under Salmon Management Activities, as well as the International Fisheries Commission line under Regional Councils and Fisheries Commissions, consist of a wide range of stock assessment, fishery monitoring, and technical support activities for all five species of Pacific salmon evident in the fisheries and rivers from Cape Suckling in Alaska to Cape Falcon in Oregon. The States of Alaska, Washington, Oregon, Idaho, and the National Marine Fisheries Service conduct a wide range of programs for salmon stock abundance assessment, escapement enumeration, stock distribution, and fishery catch and effort information. The information is used to establish fishing seasons, harvest levels, and accountability to the provisions of Treaty fishing regimes.

Like many other programs, funding to implement the Pacific Salmon Treaty decreased in recent years. Prior to that, the base annual Treaty implementation funding remained essentially flat since the inception of the Treaty in 1985. In order to continue to fulfill the Federal commitments created by the Treaty, and as costs and complexity has increased over time, the States had to augment Federal funding with other Federal and State resources. However, alternative sources of funding have been reduced, or in some cases completely eliminated.

In addition to the recent budget reductions due to sequestration, NOAA changed the process for applying administrative fees to the funding intended for the implementation of the Pacific Salmon Treaty. This change was first implemented 2 years ago, after many years of not charging administrative fees to this account. Multiple administrative fees are applied at Department of Commerce headquarters, National Marine Fisheries Service headquarters and at the regional level resulting in less direct funding available for on the ground activities to implement the Treaty. While the U.S. Section understands the need for appropriate overhead charges to occur at the aforementioned offices to support administrative activities related to the Pacific Salmon Treaty, the current process for and rate of the administrative fees compromises the efforts to successfully implement the Treaty.

The provisions of five annex chapters to the Treaty expire on December 31, 2018. These chapters contain the specifics for implementing the Treaty for each species in each geographic area. The renegotiation for revised annex chapters is underway. In order to ensure that the renegotiations are successfully completed, the programs in the National Marine Fisheries Service budget and contained within the Salmon Management Activities account must be adequately funded. The consequences of not successfully completing the renegotiations will negatively affect the health of Pacific salmon populations and the fisheries that depend on them.

This concludes the Statement of the U.S. Section of the Pacific Salmon Commission submitted for consideration by your subcommittee. We wish to thank the subcommittee for the support given to us in the past. Please let us know if we can supply additional information or respond to any questions the subcommittee members may have.

Thank you.

PREPARED STATEMENT OF THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

On behalf of the University Corporation for Atmospheric Research (UCAR), I am pleased to submit this testimony to the Senate Appropriations Subcommittee on Commerce, Justice, Science and Related Agencies supporting the fiscal year 2017 President's request for the vital research programs of NSF, NOAA, and NASA—with particular emphasis on the geosciences portfolio within their programs. These essential research agencies fund atmospheric and related science in hundreds of universities across the country, benefitting from the knowledge, expertise and innovation of our academic institutions.

UCAR is a consortium of over 100 research institutions, including 77 doctoral degree granting universities, which manages and operates the National Center for Atmospheric Research (NCAR) on behalf of the National Science Foundation (NSF). UCAR is proud to collaborate with and enhance the capabilities of our member universities and Federal partners so that they can carry out important research and meet mission responsibilities on behalf of the American public.

THE IMPORTANCE OF OUR RESEARCH INVESTMENTS

UCAR has worked to elevate the understanding of, and support for, the atmospheric sciences nationwide. The atmospheric science departments at our member institutions are drivers of innovation and the fundamental scientific research that has pushed our understanding of weather, climate, space weather, atmosphere, and their interplay, into exciting and groundbreaking new areas. These advances have improved our ability to predict and understand some of the most dangerous phenomena that occur on our planet every day. Protection of life and property are the central drivers of this scientific innovation and discovery. However, more broadly, these innovations play a significant role in protecting our national security, our homeland, our businesses, our infrastructure and most importantly, our families and communities. As demand for information, prediction, and mitigation increase nationally and across the globe, it is the collaborative and exhaustive research being conducted in our universities and research laboratories that will answer this call and make our families, communities, businesses, and infrastructure better equipped and prepared to meet the challenges and dangers of living inside Earth's dynamic atmosphere.

The return on investments in the atmospheric sciences exemplifies how Federal R&D drives economic growth. The commercial weather industry leverages U.S. investments in weather observation, atmospheric research, and computer modeling to produce tailored products for a wide variety of clients, including the general public. There are now more than 350 commercial weather companies in the U.S., generating nearly \$3 billion in annual revenues. The growth rate of this industry is estimated to be about 10 percent per year. The vast majority of these innovations and technological advances are products of our academic institutions. Researchers, graduate students, and investigators at our universities are an astounding and innovative resource that, in light of the linkage between innovation and our economy, should be seen for what they are—our most valuable national asset. Across the country there is groundbreaking atmospheric science being done that will power our economy, save lives, protect our citizens, and impact every single American in a profound way.

KEY PROGRAMS AT NSF, NOAA, AND NASA

Within NSF, NOAA, and NASA, there are a number of specific initiatives we call to the subcommittee's attention and ask for your strong support for these initiatives:

- NSF's geoscience directorate, its division of atmospheric and geospace sciences; and the National Center for Atmospheric Research (NCAR);
- Key NOAA programs including the Airborne Phased Array Radar program (APAR), the new Research Transition Acceleration Program (RTAP), and the Constellation Observing System for Meteorology, Ionosphere, and Climate—2 (COSMIC) and its ground station; and
- NASA earth sciences and heliophysics research programs.

National Center for Atmospheric Research (NCAR).—NCAR, NSF's only federally Funded Research and Development Center in the geosciences, has an exceptional record of leadership, scientific achievement and effective translation of scientific advances into useful knowledge for a nation that is highly impacted by atmospheric events that are sometimes catastrophic. Yet despite a 10 percent increase in NSF appropriations since fiscal year 2011, NSF base support for NCAR has remained essentially flat. There is real and growing concern by the UCAR Board of Trustees that at the current funding levels, NCAR will be unable to support critical new scientific priorities while maintaining existing national scientific capabilities; such as the expanded computing facility operating in Wyoming or the High-performance Instrumented Airborne Platform for Environmental Research (HIAPER). These are examples of newly established capabilities resulting from prior appropriations provided by this subcommittee now under stress due to shortfalls in NCAR base funding. NCAR is an essential part of the research capabilities needed by the atmospheric and geospace sciences community. Accordingly, we request that you support the NSF's request for the atmospheric and geospace sciences division (\$268 million) and NCAR base funding of \$105 million—a level that will help support current operating and staffing costs.

Airborne Phased Array Radar (APAR).—The proposed NOAA investment of \$4.6 million in the APAR program will enable research and development of advanced methods of aircraft-based hazardous weather observation, which provide critical information about severe, tropical and heavy precipitation storms, for more accurate public warnings and forecasts. Airborne Doppler radar measurements provide critical location and intensity information about these storms, especially over open

ocean or rugged terrain, where other radar information does not exist. Forecasters around the world utilize these radar observations, combined with satellite data and other environmental observations, to study storms and generate predictions of storm intensity and direction. However, NOAA cannot fully take advantage of current technology due to mounting restrictions on aircrafts. Therefore, this proposed investment will initially focus on the research and development of an airborne radar system which can be utilized on a NOAA aircraft, and will provide more data, more accurately. Requested funding will be used to examine the potential benefits of APAR for providing the real time data needed for National Weather Service (NWS) forecasts and warnings and to determine how APAR's additional, advanced capabilities can improve forecasts in the future. NOAA Research will work with the research community to initially develop and demonstrate APAR's feasibility for collecting airborne radar measurements in hazardous weather environments, including hurricanes and severe local storms. Additionally, NOAA and its partners will use these measurements to conduct research to understand severe storms and improve NOAA's predictions and warnings for the public. Through this effort, future opportunities to develop and test other airborne observing systems, besides radar, will emerge and ensure that NOAA has the best airborne observing platform for hazardous weather events.

Research Transition Acceleration Program (RTAP).—In fiscal year 2017 NOAA proposes to establish a \$10 million program to ensure continuous development and transition of the latest scientific and technological advances to National Weather Service (NWS) Operations. Through the RTAP proposal NOAA seeks to establish a broad program that accelerates the transition of the most promising research for the full spectrum of NOAA's mission requirements (e.g., weather, climate, fisheries management, ocean and coastal stewardship) to application and operations. The rapid transition of research projects to mission-driven applications, operational services, and commercialization is essential to achieve full return on NOAA's Research and Development (R&D) investment and to advance NOAA core missions. Numerous research projects with significant potential to benefit society are ready for rapid transition, but require increased resources for demonstration in relevant test environments, evaluation for commercial potential, and possible patent protection. This program will increase the number of demonstration-ready research activities for application and deployment to NOAA's diverse mission areas and for delivery to external partners and stakeholders. Funding will allow NOAA to accelerate the movement of transition ready projects through the demonstration and test phase of R&D and/or commercial application.

Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC).—COSMIC is a six-satellite constellation that was launched to the polar orbit in 2006 in a joint collaboration between Taiwan, National Science Foundation, NASA, United States Air Force (USAF), and University Corporation for Atmospheric Research (UCAR). It was a research effort to explore a new, inexpensive atmospheric sounding technique, GNSS RO, to obtain global atmospheric temperature profiles, which were not available globally from other sources. The results of the research were so positive that NOAA started using GNSS RO data operationally. GNSS RO has been proven to be a cost-effective means of increasing the volume of quality global atmospheric soundings, providing temperature, water vapor, and pressure profiles, which result in more accurate long-range weather forecasts. The COSMIC design life was reached in April 2011.

COSMIC-2 is a continuation of the partnership between the United States (NOAA and USAF) and Taiwan to produce an operational constellation of GNSS RO satellites. The USAF is providing six RO sensors to be launched in low-inclination (equatorial) orbit, known as COSMIC-2A. Taiwan will procure and operate the spacecraft for the GNSS RO satellites. NOAA will provide the ground reception system for processing data from the GNSS RO satellites. NOAA intends to leverage this ground system to acquire other RO data where possible whether from other governmental organizations or commercial operators. NOAA has requested \$8.1 million for ground reception and processing of GNSS RO satellite data. UCAR strongly supports this request. With this funding NOAA intends to complete all information technology security testing and verification in preparation for COSMIC-2 launches. Also, UCAR processing functions will be tested and certified by the National Centers for Environmental Prediction. This level of funding will support the operational testing and validation of the Numerical Weather Prediction models for COSMIC-2.

NASA Earth Science.—UCAR requests full funding of the Earth Science Division, per the President's request. This amount ensures exciting projects such as the Surface Water and Ocean Topography (SWOT) mission, which will conduct the first-ever global survey of Earth's surface water. Data from the satellite has promising

uses for flood and drought management at local, regional, and national levels; improved risk assessments by the insurance industry; harnessing ocean energy opportunities; and optimizing the efficiency and effectiveness of both military and commercial marine operations. Strong funding for NASA Earth Sciences will also support the launch of Landsat 9 and 10 in a timely manner, which will provide manifest benefits to municipalities, corporations, and the general public in land-use planning.

NASA Heliophysics.—UCAR requests full funding of the Heliophysics Science Division, per the President's request. This amount ensures strong research in the study of the sun and its impact on the Earth. In 1859, a large Coronal Mass Ejection (CME)—known as the Carrington Event—sent charged plasma to the Earth from the sun, causing widespread failure of the telegraph system. Recently smaller events caused localized disruptions in telecommunications and electricity grid systems, which negatively impacted industry and military activities, as well as the daily lives of American citizens. Because of societal reliance on space-based assets, as well as the electricity grid, and a number of other systems vulnerable to extreme space weather, the economic impact of another Carrington Event to the United States alone is \$2.6 trillion. As such, we must improve our ability to understand and predict space weather to mitigate the risks and costs associated with future threats. Strong funding for the Heliophysics Division would enable NASA to fully participate in the cross-agency Space Weather Action Plan that will enable the United States to better understand, prepare for, and respond to space weather.

CONCLUDING THOUGHTS

We recognize the constraints the subcommittee must confront in developing its fiscal year 2017 appropriations bill. We hope you will see the investment in the research programs of NSF, NOAA, and NASA as essential priority investments that will contribute to the Nation's economic and national security as well as public safety. Thank you for the opportunity to submit these views.